GE Medical Systems

Technical Publications

2187853−100

Revision 12

Legacy/Legacy−D Phase II and III Table & Imaging Device Operator Manual

CE 0459

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Operating Documentation

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Legacy/Legacy−D Phase II Table & Imaging Device Operator Manual

IMPORTANT! . . . X-RAY PROTECTION

X-ray equipment if not properly used may cause injury. Accordingly, the instructions herein contained should be thoroughly read and understood by everyone who will use the equipment before you attempt to place this equipment in operation. The General Electric Company, Medical Systems Group, will be glad to assist and cooperate in placing this equipment in use.

Although this apparatus incorporates a high degree of protection against x-radiation other than the useful beam, no practical design of equipment can provide complete protection. Nor can any practical design compel the operator to take adequate precautions to prevent the possibility of any persons carelessly exposing themselves or others to radiation.

It is important that everyone having anything to do with x-radiation be properly trained and fully acquainted with the recommendations of the National Council on Radiation Protection and Measurements as published in NCRP Reports available from NCRP Publications, 7910 Woodmont Avenue, Room 1016, Bethesda, Maryland 20814, and of the International Commission on Radiation Protection, and take adequate steps to protect against injury.

The equipment is sold with the understanding that the General Electric Company, Medical Systems Group, its agents, and representatives have no responsibility for injury or damage which may result from improper use of the equipment.

Various protective material and devices are available. It is urged that such materials or devices be used.

CAUTION: United States Federal law restricts this device to use by or on the order of a physician.

If you have any comments, suggestions or corrections to the information in this document, please write them down, include the document title and document number, and send them to:

GENERAL ELECTRIC COMPANY MEDICAL SYSTEMS
MANAGER – INFORMATION INTEGRATION,
AMERICAS W–622
P.O. BOX 414
MILWAUKEE, WI 53201–0414

CERTIFIED ELECTRICAL CONTRACTOR STATEMENT

All electrical installations that are preliminary to positioning of the equipment at the site prepared for the equipment shall be performed by licensed electrical contractors. In addition, electrical feeds into the Power Distribution Unit shall be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations, and testing shall be performed by qualified GE Medical personnel. The products involved (and the accompanying electrical installations) are highly sophisticated, and special engineering competence is required. In performing all electrical work on these products, GE will use its own specially trained field engineers. All of GE's electrical work on these products will comply with the requirements of the applicable electrical codes.

The purchaser of GE equipment shall only utilize qualified personnel (i.e., GE's field engineers, personnel of third-party service companies with equivalent training, or licensed electricians) to perform electrical servicing on the equipment.

DAMAGE IN TRANSPORTATION

All packages should be closely examined at time of delivery. If damage is apparent, have notation "**damage in shipment**" written on **all** copies of the freight or express bill **before** delivery is accepted or "signed for" by a General Electric representative or a hospital receiving agent. Whether noted or concealed, damage **MUST** be reported to the carrier **immediately** upon discovery, or in any event, within **14** days after receipt, and the contents and containers held for inspection by the carrier. A transportation company will not pay a claim for damage if an inspection is not requested within this **14** day period.

Call Traffic and Transportation, Milwaukee, WI (414) 827–3449 / 8*285–3449 **immediately** after damage is found. At this time be ready to supply name of carrier, delivery date, consignee name, freight or express bill number, item damaged and extent of damage.

Complete instructions regarding claim procedure are found in Section "S" of the Policy & Procedure Bulletins.

6/17/94

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REGULATORY REQUIREMENTS

Note: This equipment generates, uses, and can radiate radio frequency energy. The equipment may cause radio frequency interference to other medical and non-medical devices and radio communications. To provide reasonable protection against such interference, this product complies with emissions limits for a Group 1 Class A Medical Devices as stated in EN 60601–1–2.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment is found to cause interference (which may be determined by switching the equipment on and off), the user (or qualified service personnel) should attempt to correct the problem by one or more of the following measure(s):

- ❑ Reorient or relocate the affected device(s).
- ❑ Increase the separating space between the equipment and the affected device.
- ❑ Power the equipment from a source different from that of the affected device.
- ❑ Consult the point of purchase or service representative for further suggestions.

The manufacturer is not responsible for any interference caused either by the use of interconnect cables other than those recommended, or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

To comply with the regulations applicable to an electromagnetic interface for a Group 1 Class A Medical Device, all interconnect cables to peripheral devices must be shielded and properly grounded. Use of cables not properly shielded and grounded may result in the equipment causing radio frequency interference in violation of the European Union Medical Device directive and FCC regulations.

Note: Do not use devices which intentionally transmit RF Signals (Cellular Phones, Transceivers, or Radio Controlled Products) in the vicinity of this equipment as it may cause performance outside the published specifications. Keep the power to these type devices turned off when near this equipment.

The medical staff in charge of this equipment is required to instruct technicians, patients, and other people who may be around this equipment to fully comply with the above requirement.

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REGULATORY REQUIREMENTS

High levels of Radio Frequency (RF) energy in the vicinity of this X−Ray Suite may cause noise to appear on video monitors and recorders. This noise should disappear spontaneously when the stimulus is removed. If the problem persists, call Service.

Under certain Electro Static Discharge (ESD) and Electrical Fast Transient (EFT) conditions, noise may appear on video monitors and recorders. This noise should disappear spontaneously when the stimulus is removed. If the problem persists, call Service.

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REGULATORY REQUIREMENTS

This product complies with the regulatory requirements of the following:

❑ Council Directive 93/42/EEC concerning medical devices when it bears the following CE marking of conformity:

CE 0459

For a system, the location of the CE marking label is described in the system manual.

European registered place of business:

GE Medical Systems Europe
Quality Assurance Manager
BP 34
F 78533 BUC CEDEX
France
Tel: +33 1 30 70 40 40

❑ Green QSD 1990 Standard issued by MDD (Medical Devices Directorate, Department of Health, UK).

❑ Medical Device Good Manufacturing Practice Manual issued by the FDA (Food and Drug Administration, Department of Health, USA).

❑ Underwriters' Laboratories, Inc. (UL), an independent testing laboratory.

❑ Canadian Standards Association (CSA).

❑ International Electrotechnical Commission (IEC). International standards organization, when applicable.

General Electric Medical Systems is ISO 9001 certified.

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REVISION HISTORY

REV	DATE	REASON FOR CHANGE
0	May 2, 1997	Initial product release.
1	June 2, 1997	Revised Regulatory Requirements.
2	August 19, 1997	Revised room light artwork in Table 4−11.
3	October 23, 1997	Added Auto Grid and Adjustable Digital Frame Rate to section 4. Added Universal Image Head model number to section 2.
4	March 11, 1998	Revised Section 3−11 from Lombardi validations.
5	June 9, 1999	Added radiation shield and table referencing IEC 601−1−3 requirements.
6	August 9, 1999	Removed radiation shield references.
7	June 14, 2001	Added caution to section 6−1−2 concerning “instruments catching on the cross bar”.
8	September 4, 2001	Skip revision 8. A PCN was incorrectly issued. The PCN for revision 8 is a duplicate of the PCN for revision 7.
9	November 30, 2001	Added Cone Interlock information and updated Travel and Counterbalancing section.
10	June 5, 2002	Added Zones of Occupancy illustrations to section 2−7.
11	June 6, 2002	Corrected Air Kerma Loading Factors in section 2−7.
12	Jan 20, 2004	Changed section 4−7, table 4−11, item 1.

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SECTION 1
WHAT'S IN EACH SECTION

A short description of each section is provided below. If unfamiliar with the new imaging device, it is recommended that each section is read in sequence.

Section 1 — **What's in Each Section.**
Descriptions of the topics of each chapter in this manual.

Section 2 — **Introduction.**
Components of the imaging system are introduced.

Section 3 — **Safety.**
Instructions and precautions for safe use of the imaging system.

Section 4 — **Operator Controls and Displays.**
Description of all Legacy Table and Imaging Device controls and displays, with locations of button selections and their functions.

Section 5 — **Operation.**
Operation of the imaging device is described: power up, imaging device parking, loading/unloading cassettes, and X−ray exposure procedures.

Section 6 — **Options.**
Description of optional accessories.

Section 7 — **Maintenance**
Maintenance and service information.

Section 8 — **Glossary**
A Glossary of technical terms used in this manual.

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SECTION 2
INTRODUCTION

2-1 Overview

The Intelligent Spot Film Device (ISFD) and Intelligent Digital Device (IDD), Illustration 2−1, is a multi−faceted image receptor for general fluoroscopy and rapid serial radiography diagnostic procedures.

The ISFD/IDD device:

- Supports the fluoroscopic image system and video camera.
- Accepts a range of cassette sizes for the acquisition from full format to nine spot images on a single sheet of film (ISFD only).
- Provides a high line rate grid to improve image quality.
- Provides a source to image distance range of 75.1 cm (29.6 inches) to 103.1 cm (40.6 inches).

ILLUSTRATION 2−1
INTELLIGENT SPOT FILM DEVICE, INTELLIGENT DIGITAL DEVICE AND LEGACY TABLE OVERVIEW

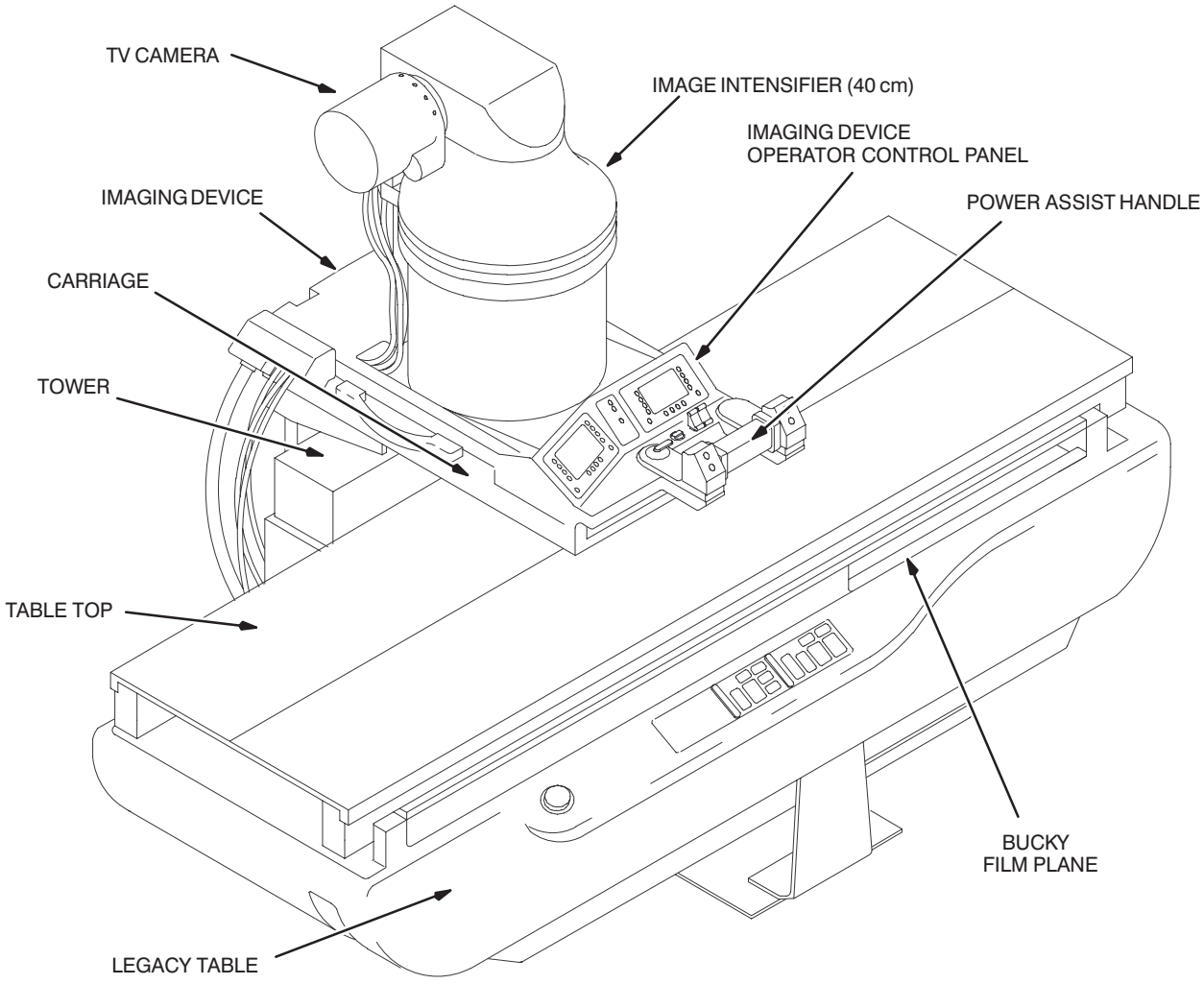

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ILLUSTRATION 2−2
LEGACY HF SYSTEM IDENTIFICATION AND COMPLIANCE PLATES

TYPICAL IDENTIFICATION PLATE

GENERAL ELECTRIC COMPANY
MILWAUKEE, WISCONSIN MADE IN U.S.A.
MODEL
S/N
DESC

X−RAY EQUIPMENT BY UNDERWRITERS LABORATORIES INC.
IS TO ELECTRICAL, SHOCK, FIRE, AND MECHANICAL HAZARDS ONLY, 310L

COMPLIES WITH RADIATION PERFORMANCE STANDARDS
21 CFR SUBCHAPTER J.

TYPICAL HHS STATEMENT

TYPICAL CSA CERTIFICATION PLATE

CERTIFIÉ SELON LES EXIGEUCES DU CODE CANADIEN DE L'ÉLCTRICITÉ. L'ANCHOR N'A PAS ÉTUDIÉ LES AUTRES EFFETS PHYSIOLOGIQUES POSSIBLES.

CERTIFIED TO THE REQUIREMENTS OF THE CANADIAN ELECTRICAL CODE. CSA HAS NOT INVESTIGATED OTHER PHYSIOLOGICAL EFFECTS.

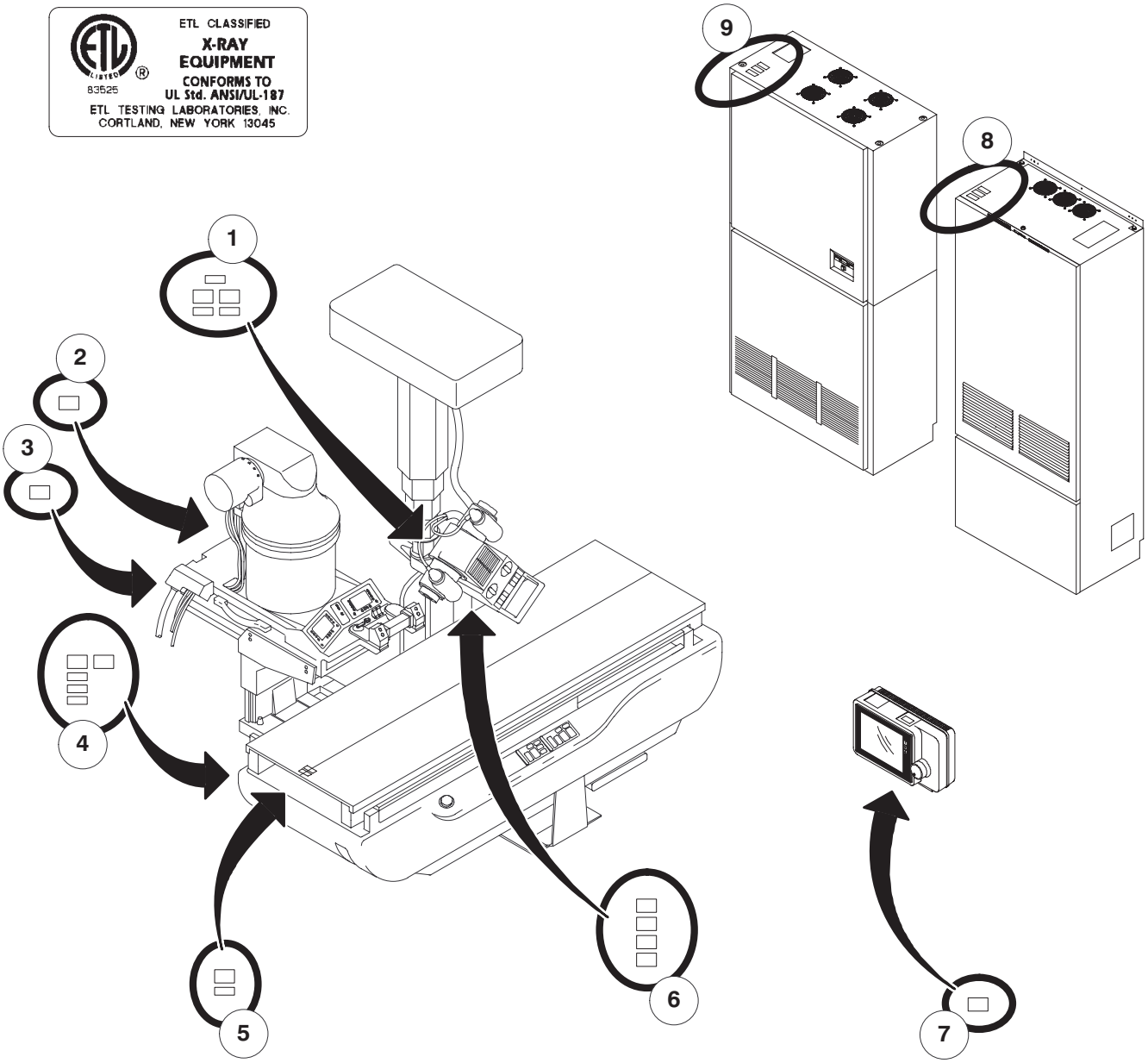
TYPICAL UL STATEMENT

TYPICAL IEC CERTIFICATION PLATE

IEC 601−2−7

TYPICAL ETL CLASSIFICATION PLATE

ETL CLASSIFIED
X-RAY EQUIPMENT
CONFORMS TO UL Std. ANSI/UL-187
83525
ETL TESTING LABORATORIES, INC.
CORTLAND, NEW YORK 13045



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2-2 Identification and Compliance Plates

For HF systems, see Illustration 2−2 and Table 2−1.

TABLE 2−1
LEGACY HF SYSTEM IDENTIFICATION AND COMPLIANCE PLATES

Item	Component	Model Number	Plate Type
1	XT Suspension X−Ray MX 100 X−Ray Tube Casing		
	Maxiray 100−18 H.S.; Focal Spots 0.6 − 1.25; 12.5˚	46−155400G277	Identification, HHS, CE, UL
	Maxiray 100−18 H.S.; Focal Spots 0.3 − 1.0; 12.5˚	46−155400G290	Identification, HHS, CE, UL
2	Image Intensifier (40 cm/16 Inch) Digital and Non−Digital	46−315152G3	Identification, HHS, UL
	Image Intensifier (32 cm/12 Inch) Digital	46−275382G58	Identification, HHS, UL
	Image Intensifier (22 cm/9 Inch) Digital	46−275382G59	Identification, HHS, UL
	Image Intensifier (32 cm/12 Inch) Non−Digital	46−275382G60	Identification, HHS, UL
	Image Intensifier (22 cm/9 Inch) Non−Digital	46−275382G61	Identification, HHS, UL
	Image Intensifier (40 cm/16 Inch) Universal Image Head	2173910	Identification, HHS, UL
3	Intelligent Spot Film Device (22/32 cm II)	2118104	Identification, HHS, ETL
	Intelligent Spot Film Device (40 cm II)	2118104-2	Identification, HHS, ETL
	Intelligent Digital Device (22/32 cm II)	2118104−3	Identification, HHS, ETL
	Intelligent Digital Device (40 cm II)	2118104−4	Identification, HHS ETL
4	Legacy R&F Table	46−262751G7	Identification, CE Label
4a	Legacy R&F Table Standard Top Drive	46−270153G4	Identification
4b	Legacy R&F Table Collimator (Ultranet SU − Undertable)	ZAOULOSU	Identification, HHS, CSA (On collimator inside table)
4c	Legacy R&F Table Fluoro MX−100 X−Ray Tube Casing		
	Maxiray 100FL; Focal Spots 0.6 − 1.0; 12.5 (Adjusted with 2.1˚ wedge)	46−155500G228	Identification, HHS, CE, UL (On tube inside table)
	Maxiray 100FL; Focal Spots 0.6 − 1.25; 12.5˚ (Adjusted with 2.1˚ wedge)	46−155500G230	Identification, HHS, CE, UL (On tube inside table)
4d	Legacy R&F Table Reciprocating Bucky	46−315385G2	Identification (On bucky inside table)
	Legacy R&F Table Cassette Size Sensing Tray	46−262555P3	Identification (On bucky CSS tray inside table)
5	Legacy R&F Table Top	46−180600G1	Identification, HHS
6	XT Suspension Collimator (Ultranet SA)		
	Ultranet SA − Automatic	ZAOULOSA	Identification, HHS, CSA
	Ultranet SM − Manual	ZAOULOSM	Identification, HHS, CSA
7	Advantx Console	2106684	Identification, HHS, CSA
8	Legacy R&F Positioner Cabinet	2171204	Identification, ETL
9	Legacy SCPU Cabinet (Upper Half Control)	2139574	Identification, ETL
9a	Legacy SCPU Cabinet (Lower Half Generator)	2157009	Identification, HHS, CSA, IEC
9b	Legacy SCPU Cabinet Upper Half VIC Module	46−289804G12	Identification

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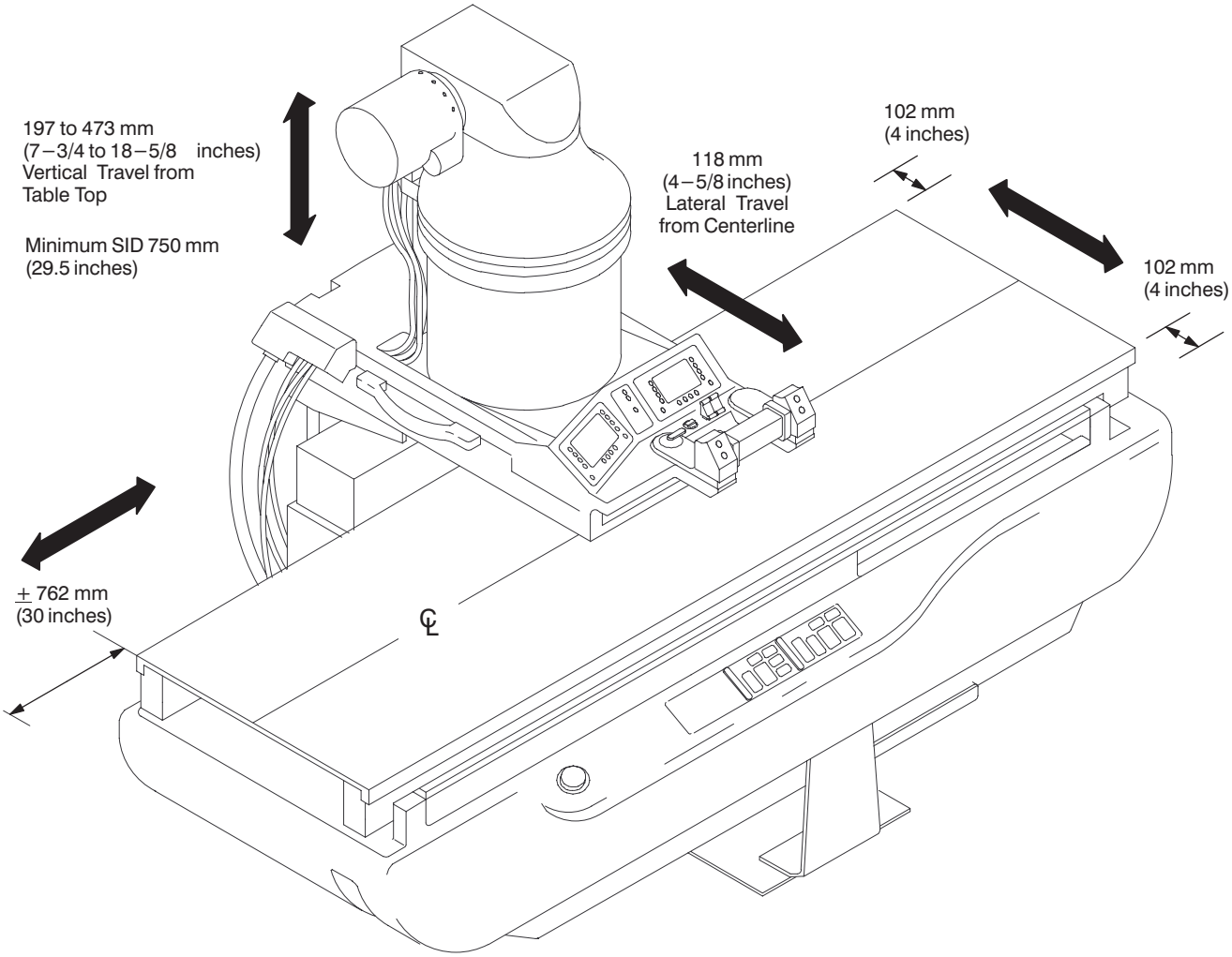
2-3 Exposure Modes

The imaging system provides the following X−ray exposure modes.

- Spot Film/Digital (ISFD)
- Digital Record (IDD)
- Fluoro

2-4 Travel Specifications

ILLUSTRATION 2−3
TRAVEL SPECIFICATIONS FOR INTELLIGENT SPOT FILM DEVICE, INTELLIGENT DIGITAL DEVICE AND LEGACY TABLE TOP



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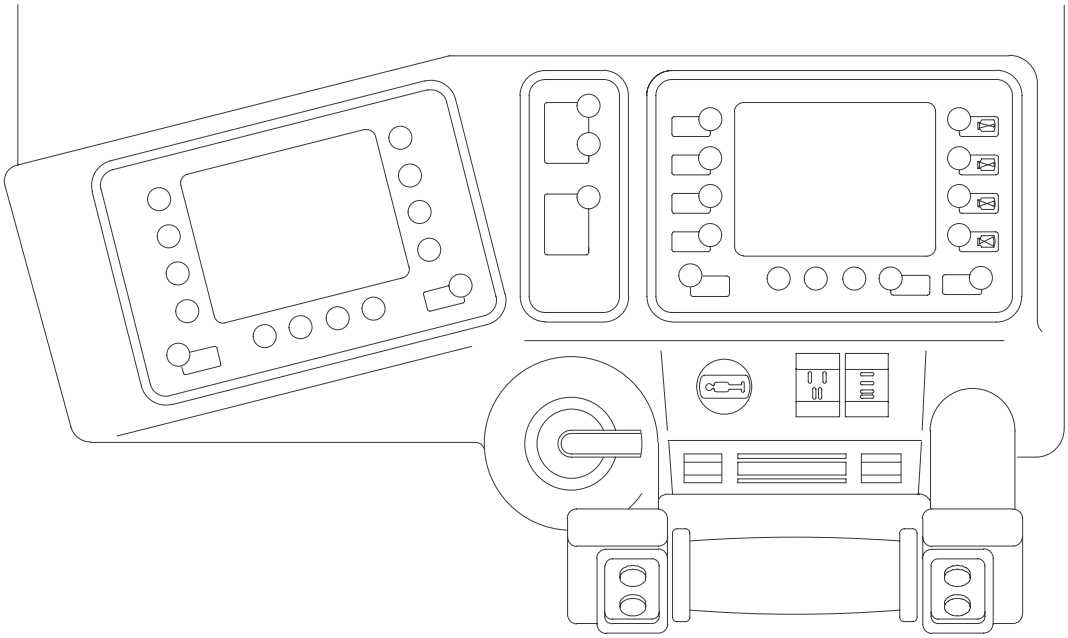
2-5 Spot Film Operator Control Panel

Control of spot film operation is from the spot film control panel.

ILLUSTRATION 2−4
SPOT FILM OPERATOR CONTROL PANEL



2-6 Film Cassette Compatibility

The following manufacturer's cassettes are compatible with the spot film:

TABLE 2−2
CASSETTE COMPATIBILITY

Manufacturer	Trade Name	Loading Style
Agfa	Curix	Automatic/Manual
CAWO	ABS	Manual
DuPont	Modular Daylight	Automatic
DuPont	Compact Daylight	Automatic/Manual
DuPont	Cronex Regular	Manual
Fuji	EC−B	Automatic/Manual
Fuji	EC−A	Manual
Kodak	Kodaflex	Automatic
Kodak	X−Omatic	Manual
Konica	DayStar	Automatic
Konica	–	Manual
Okamoto	PL−B	Manual

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2-7 Types of Radiological Examinations in Significant Zone of Occupancy

The following are the types of radiological examinations for which the Significant Zone of Occupancy is designated to be used:

Note: Refer to Illustrations 2−5 through 2−10 for a definition of the area of the Zone of Occupancy and the radiation curves.

- Upper Gastro−intestinal
- Barium Enema
- Intravenous Pyelography
- Pharynx/Esophogus
- Myelography
- General Fluoroscopy
- Retrograde Pyelography
- Cholangio/Panc.
- Urethro/Cysto.
- Venography − extremities
- Venography − other
- Cholecystography
- Arthrography
- Hysterosal./Pelvimetry
- Interventional Biliary/Gastro−intestinal
- Interventional Urinary Tract
- Drainage Catheter Placement
- Diskography
- Lymphangiography

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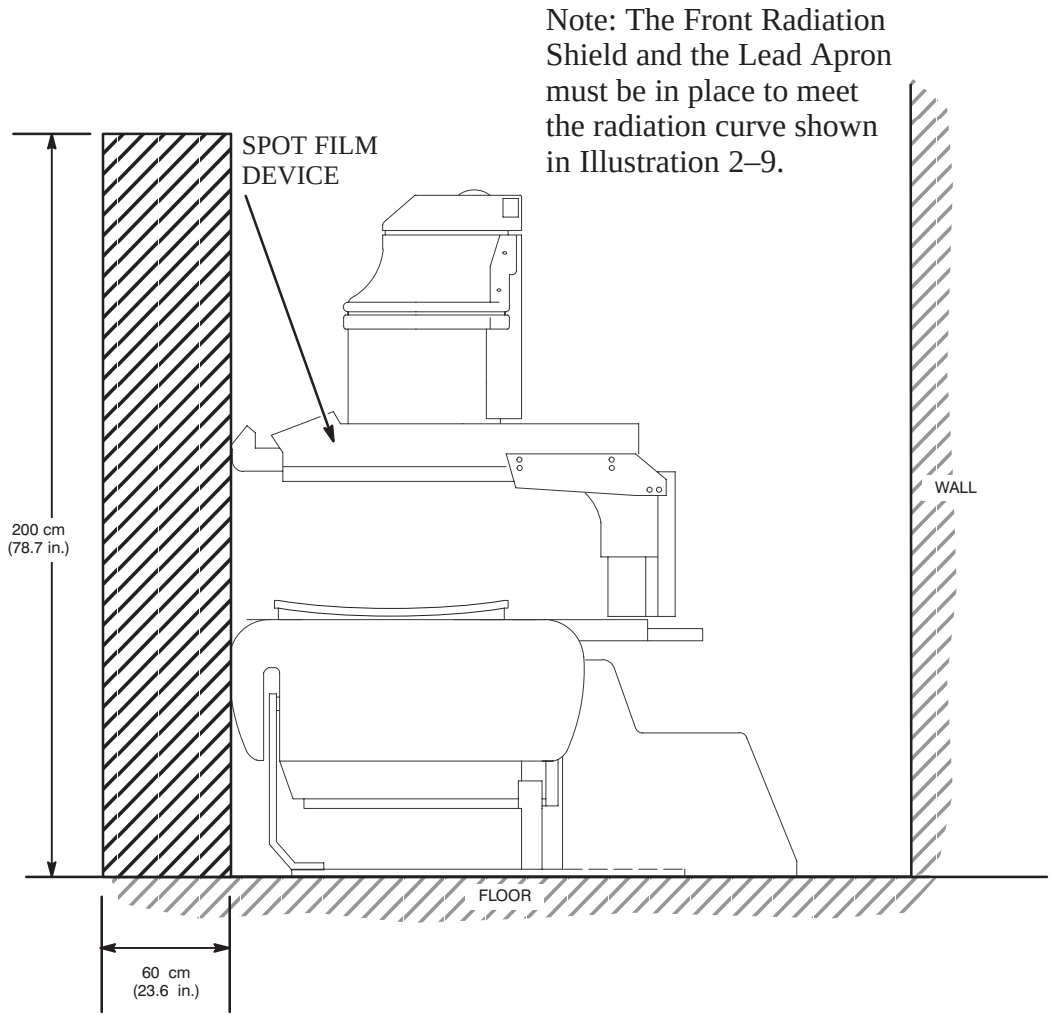
ILLUSTRATION 2−5
DESIGNATION OF SIGNIFICANT ZONE OFOCCUPANCY
TABLE HORIZONTAL


Note: The Front Radiation Shield and the Lead Apron must be in place to meet the radiation curve shown in Illustration 2–9.
SPOT FILM DEVICE
WALL
200 cm (78.7 in.)
FLOOR
60 cm (23.6 in.)

ZONE OF OCCUPANCY

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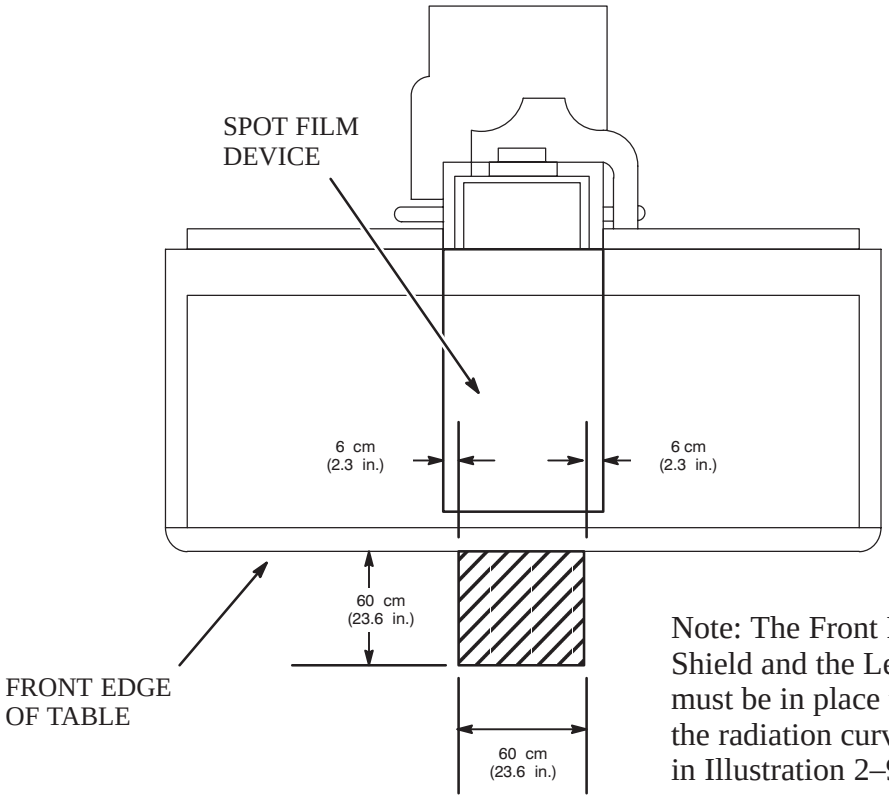
ILLUSTRATION 2−6
DESIGNATION OF SIGNIFICANT ZONE OF OCCUPANCY
TABLE HORIZONTAL (TOP DOWN VIEW)



Note: The Front Radiation Shield and the Lead Apron must be in place to meet the radiation curve shown in Illustration 2–9.

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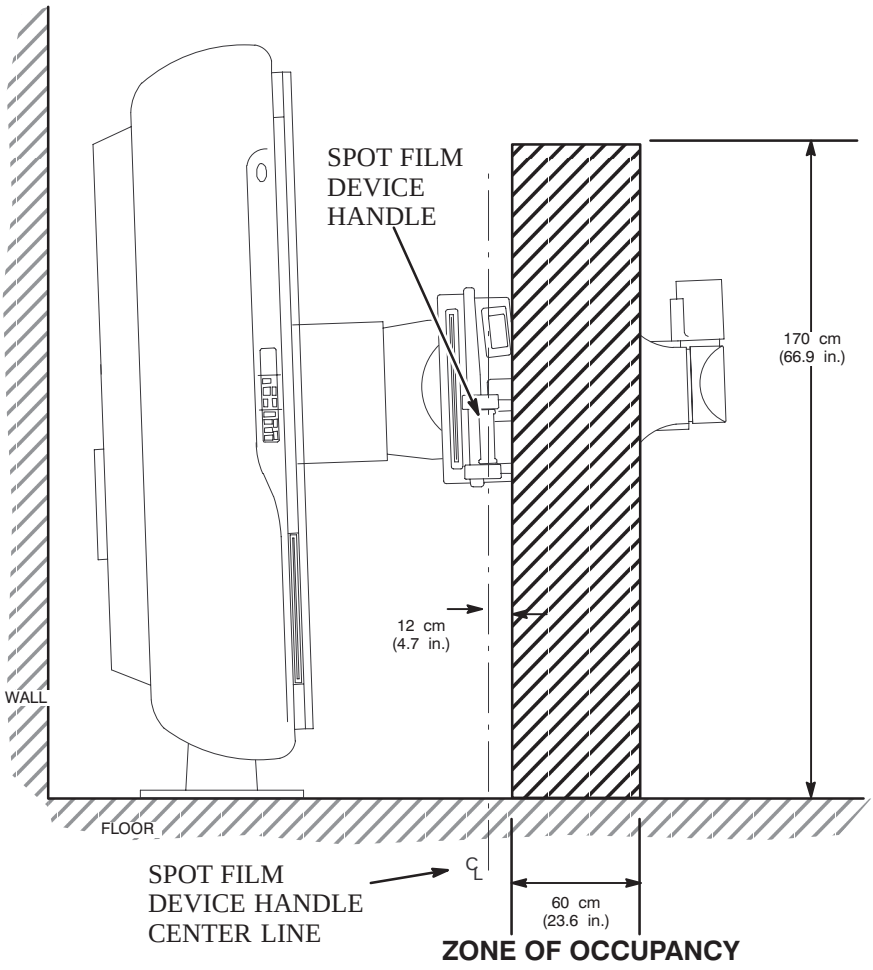
ILLUSTRATION 2−7
DESIGNATION OF SIGNIFICANT ZONE OF OCCUPANCY
TABLE VERTICAL



Note: The Front Radiation Shield and the Lead Apron must be in place to meet the radiation curve shown in Illustration 2–10.

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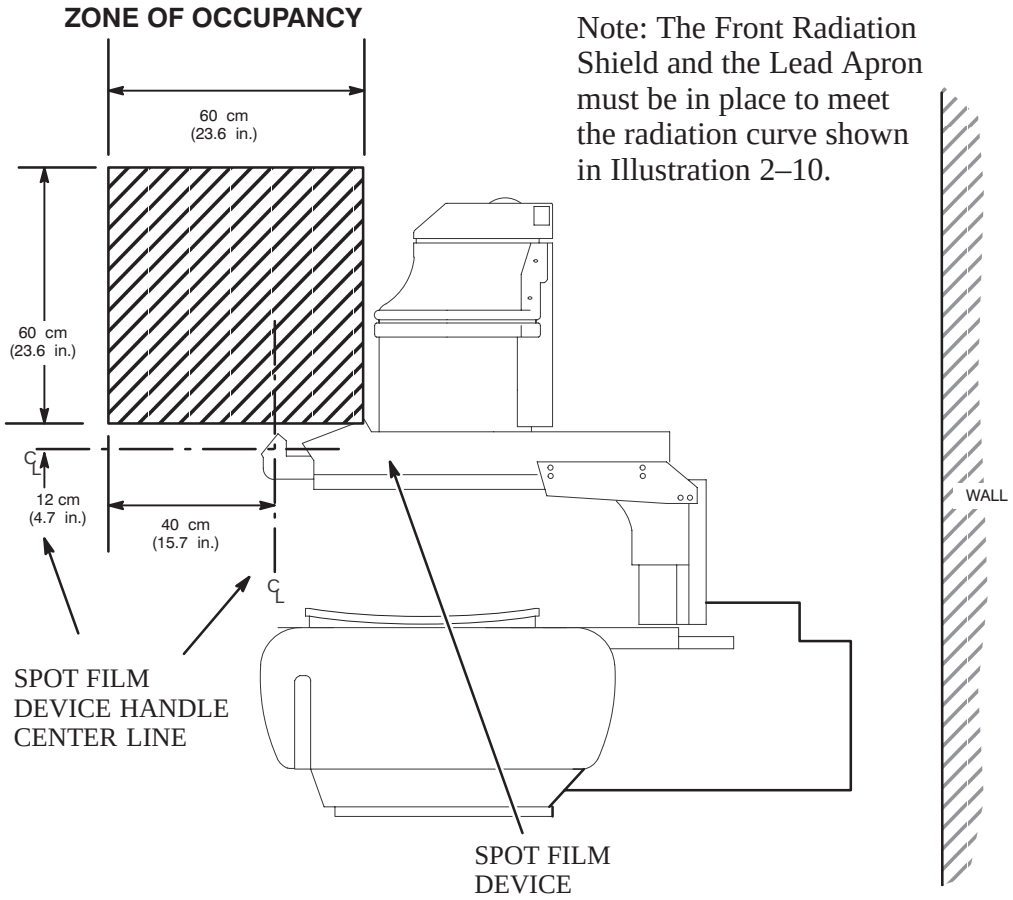
ILLUSTRATION 2−8
DESIGNATION OF SIGNIFICANT ZONE OF OCCUPANCY
TABLE VERTICAL (TOP DOWN VIEW)



Note: The Front Radiation Shield and the Lead Apron must be in place to meet the radiation curve shown in Illustration 2–10.

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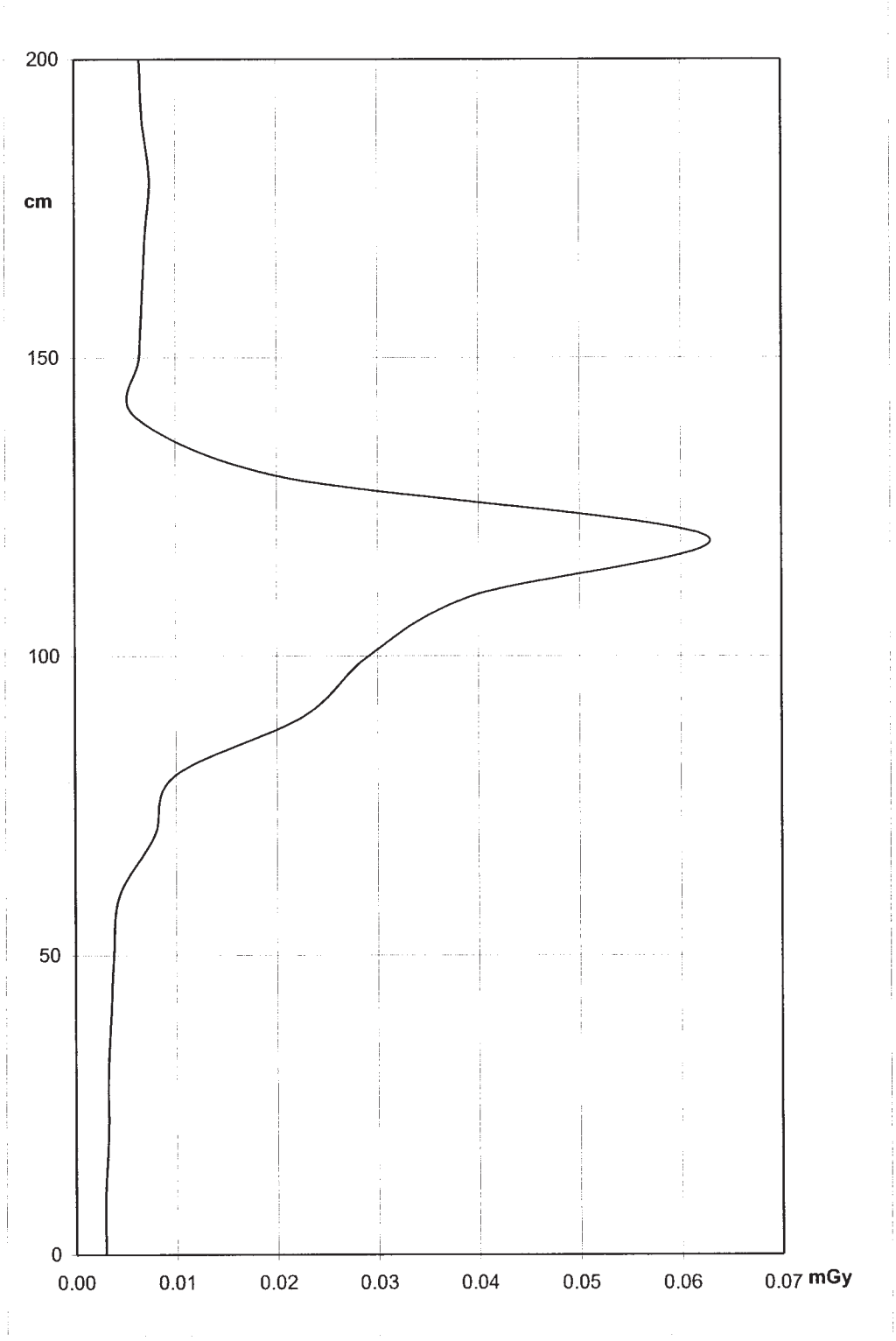
ILLUSTRATION 2−9
RADIATION CURVE TABLE HORIZONTAL



Note: Air Kerma in one hour normalized for a work load of 3600 mAs @ 120kVp, 3 mA.

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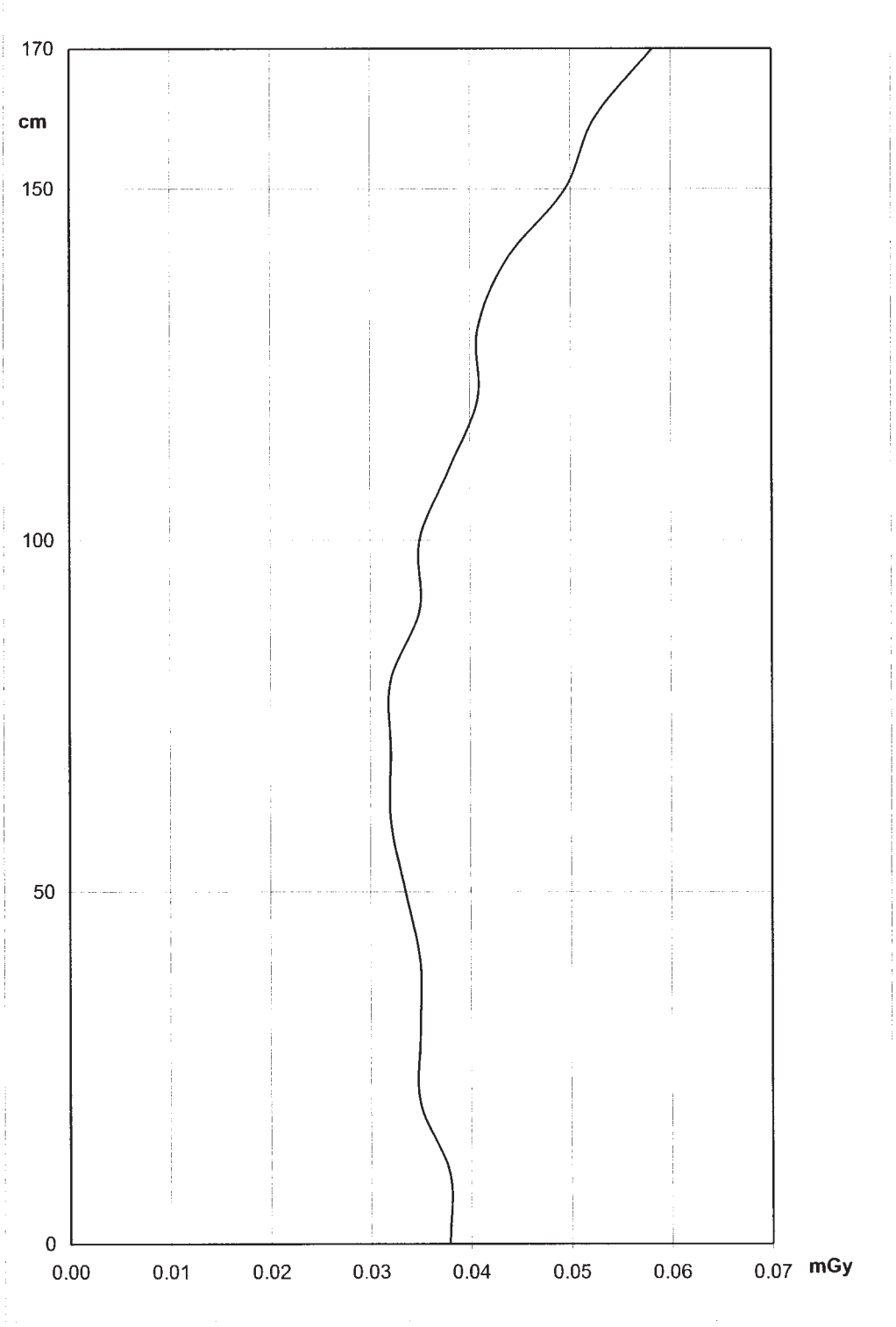
ILLUSTRATION 2−10
RADIATION CURVE TABLE VERTICAL



Note: Air Kerma in one hour normalized for a work load of 3600 mAs @ 120kVp, 3 mA.

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SECTION 3
SAFETY

3-1 General Precautions

Be alert to safety when operating this equipment. Be familiar enough with the equipment to recognize any malfunctions that can be a hazard. Do not use this equipment, if a malfunction occurs, until qualified service personnel correct the problem.

Use proper technique factors for each procedure to minimize x-ray exposure and to produce the best diagnostic results. Be thoroughly familiar with the following list of safety precautions before operating this equipment.

Make sure there is means for audio and visual communication between the operator in the control booth and the patient on the x−ray table.

Make sure to use focal spot to skin distances as large as possible in order to keep the absorbed dose to the patient as low as reasonably achievable.

3-2 Radiation Safety

See the X-Ray Protection page in the front of this direction. Use radiation protection when using this equipment. Gonadal shielding and lead aprons are essential to provide radiation protection for the patient and the operator.

WARNING

WHEN THE SPOT FILM DEVICE TOWER IS POSITIONED AS FAR TOWARDS THE BACK OF THE TABLE AS POSSIBLE AND THE TABLE TOP IS POSITIONED AS FAR TOWARDS THE FRONT OF THE TABLE AS POSSIBLE, A PORTION OF THE METAL FRAMEWORK OF THE TABLE WILL BE VISIBLE IN THE IMAGE. A PORTION OF THE X−RAY IMAGE WILL BE CUT OFF WITH THE SPOT FILM DEVICE TOWER AND THE TABLE TOP IN THESE EXTREME AND OPOSING POSITIONS.

3-3 Electrical Safety

If table is to be used for special procedure applications, a grounding kit is required and can be factory installed with original order. See Section 3-20.

3-4 Patient Positioning and Control

When moving the table top, Bucky or other elements, be sure the patient's head (hair), hands and feet are completely on and within the table top proper. If patient's hands grip around the table top frame, or if any part of his body hangs over any edge or end of the table, serious injury may result. Use the patient grasp handles, the safety harness, the shoulder rest, the foot rest and other safety measures, as appropriate, to prevent accidents.

Periodic inspection, prompt adjustment, repair or replacement of all elements of this equipment is recommended. If in doubt about the condition of this equipment, consult a GE Medical Systems technician.

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3-5 Table Angulation

Before angulating the table verify the area beneath and above the table is clear of obstruction. Selection of table positioning controls may result in patient injury.

WARNING

PERSONAL INJURY IS POSSIBLE IN THE EVENT OF UNINTENDED TABLE ANGULATION. DO NOT LEAVE PATIENT UNATTENDED ON THE TABLE.

3-6 Unsafe Table Region

CAUTION

Use care to avoid patient or operator injury, or equipment damage, in the event that an actual equipment failure caused the table to remain in an unsafe region.

If a table enters into, or powers up in an unsafe region, only those controls that can return the table to a safe region are allowed. To move out of an unsafe region:

1. Center the table top. If full table motion is not available, then
2. Move the table into the horizontal position. If full table motion is still not available.
3. Remove patient from table, safely, and call GE Service.

CAUTION

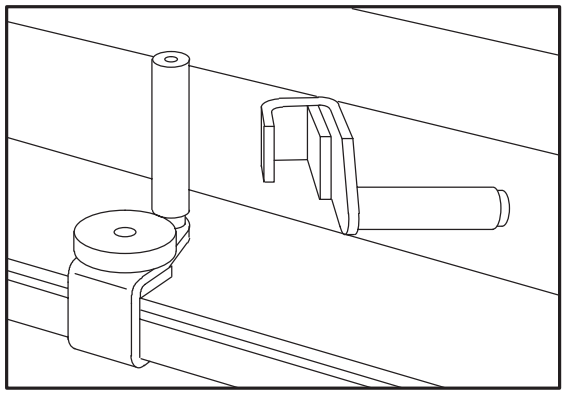
Injury could occur from unintended motion. Remove patient from the table and call Service.

3-7 Patient Grasp Handles

The Patient Grasp handles may be engaged anywhere along the table top frame. Place the clamp fully onto the top frame and tighten the knob firmly.

Instruct patients to use them. They are intended to keep the patient's hands out of harm's way, **but are not intended to hold the weight of the patient.**

ILLUSTRATION 3−1
GRASP HANDLES



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3-8 Safety Harness

Make certain to have at least a 3 inch (76 mm) overlap of the self−adhering material of the safety harness. This amount of overlap is required to support the weight of a 300 lb (136 kg) patient.

3-9 Reciprocating Bucky

WARNING

THE BUCKY ASSEMBLY IS UNBALANCED WHENEVER THE CASSETTE TRAY IS REMOVED WHILE THE TABLE IS IN THE VERTICAL OR TRENDELENBURG POSITION. TO AVOID SUDDEN MOVEMENT WHICH COULD CAUSE INJURY, ONLY REMOVE THE CASSETTE TRAY WHILE BUCKY ASSEMBLY IS LOCKED AND THE TABLE IS IN THE HORIZONTAL POSITION.

3-9-1 Travel and Counterbalancing

The Bucky is counterbalanced with a 14” x 17” film cassette. Loading a smaller cassette into the tray, or removing the cassette, will unbalance the Bucky when the table is not horizontal. To prevent the Bucky from falling, position and **lock** the Bucky before inserting the cassette if the table is **not horizontal**.

To hold the Bucky in place, apply the lock on the right side.

- To release the lock, pull the knob out and turn it 1/4 turn.
- To apply it, turn the knob and allow it to retract.

Approximate Bucky travel limits are:

- With lateral shift top − 40 inches (1016 mm) of longitudinal travel.

When not in use, park and lock the Bucky at the extreme foot end of the table.

3-9-2 Cassette Handling

- Never reach inside of the spot-film device while power is on. If absolutely necessary to reach into the spot-film device, turn off power. Unanticipated carriage travel inside the spot film can cause injury.
- Do not insert cassettes into the spot-film device at an angle.
- Use only those cassettes compatible with the Spot-Film Device.
- Do not use damaged or warped cassettes.

3-10 Bucky Grids

Grid choice is made at the time the equipment is ordered. Changing grids is not a normal user operation. Call GE Service to perform this service.

3-10-1 Oscillating Grid

The Bucky grid oscillates during the X−ray exposure. X-ray exposures are prevented until the grid is in motion.

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3-10-2 Single High Line/Rate Grid

A 12:1 or 8:1 high line/rate stationary grid is available. The single high line/rate grid does not oscillate.

3-10-3 Bucky Grid Alignment

Centering

Density cutoff at the edges of the film and the appearance of grid patterns indicate inaccurate lateral alignment.

Lateral overhead tube alignment becomes critical as **grid ratio** increases. Therefore, lateral stereo work using a **grid** is not recommended.

Longitudinal alignment is not critical and tilted tube technics may be used. It is important that the x−ray field coincide with the film. Align the collimator projected light coincident with the Bucky handle index mark.

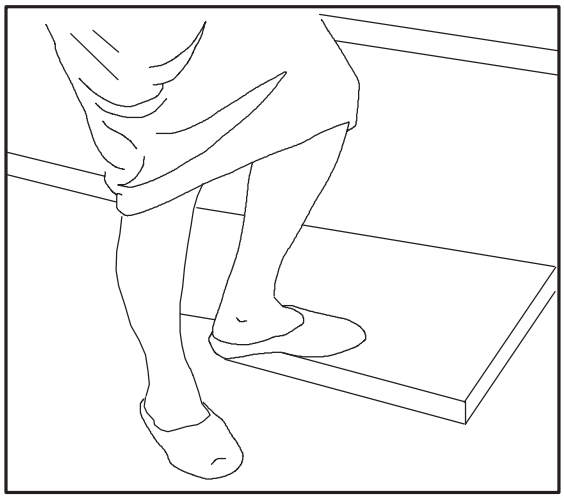
Focal Range

The Source to Image Distance (SID) must be consistent with the grid **focal range** for linear focused grids. This becomes more critical at high grid ratios.

3-11 Patient Step

The patient step (Illustration 3−2) provides patient convenience getting on and off the table. The step is attached to the underside of the table body to the right of the front support. Table angulation is prevented when the step is pulled out. The white button must be pressed to push the step in.

ILLUSTRATION 3−2
PATIENT STEP



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3-12 Foot Rest

WARNING

TO PREVENT IMPROPER ATTACHMENT AND POTENTIAL INJURY TO PATIENT, USE THIS FOOTREST ONLY ON THE TABLE FOR WHICH IT HAS BEEN ADJUSTED.

NOTICE

Installing the foot rest at the set of slots closest to the end of the tabletop provides easier patient boarding.

The foot rest is engaged on the table top in the same manner as shown for the shoulder rest on Illustration 3−3, and is designed to support a 300 lb (136 kg) patient.

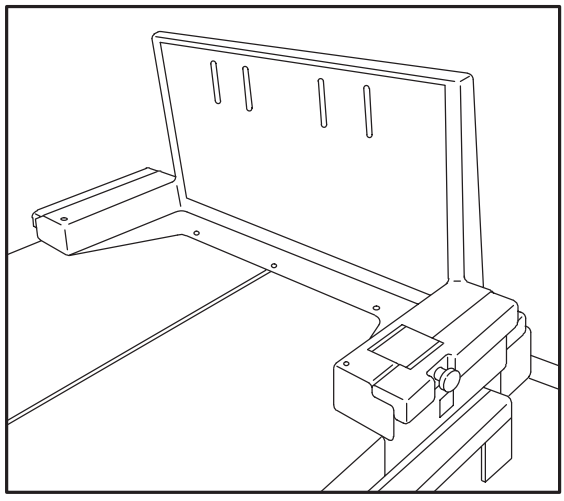
To attach:

1. Push on the safety latches with the thumbs and spread the handles.
2. Place the foot rest on the top adjacent to a set of slots and release the handles.
3. Slide the foot rest until both handles snap into place.

The safety latches will reset to prevent accidental spreading of the handles.

Check that **BOTH** handles have positive engagement by pulling on the foot rest. In case of any difficulties or doubts about the foot rest condition, call a qualified technician.

ILLUSTRATION 3−3
FOOT REST



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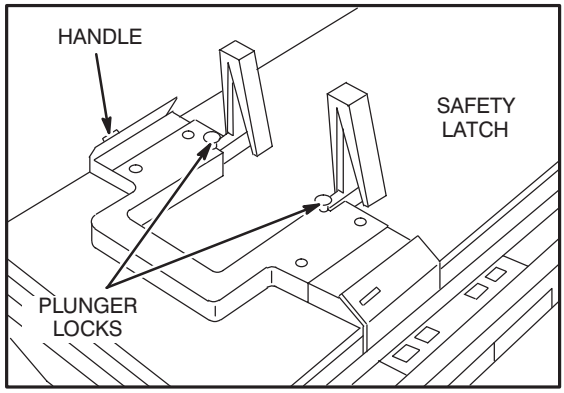
3-13 Shoulder Rest

The shoulder rest (Illustration 3−4) is engaged on the table top in the same manner as the foot rest. The plunger locks permit adjustment of the pad position in 1/2″ increments.

ILLUSTRATION 3−4
SHOULDER REST

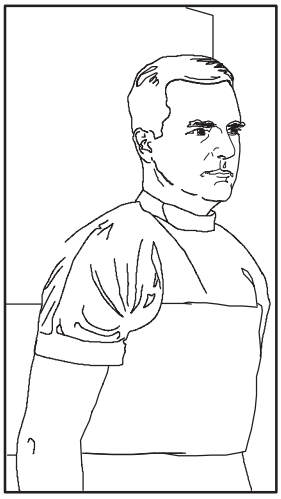


3-14 Compression Device

The compression device is not intended to be used for patient support or restraint. It may be engaged at any point along the table top and consists of the front bracket with ratchet, roller and band, and the rear anchor bracket. To use:

1. Position the patient
2. Engage the brackets on the front and rear edges of the table top.
3. Pull up the ratchet handle, pull out the band and hook the rod on the rear bracket.
4. Tighten the band by “cranking” the ratchet handle i.e., move it back and forth.
5. Release the patient by lifting up the ratchet handle and disengaging the band.

ILLUSTRATION 3−5
COMPRESSION DEVICE



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3-15 Myelographic Operation

For myelographic procedures, the Horizontal Stop selection located on the table control panel should be **off**. This inhibits accidental motion of the cone during the procedure.

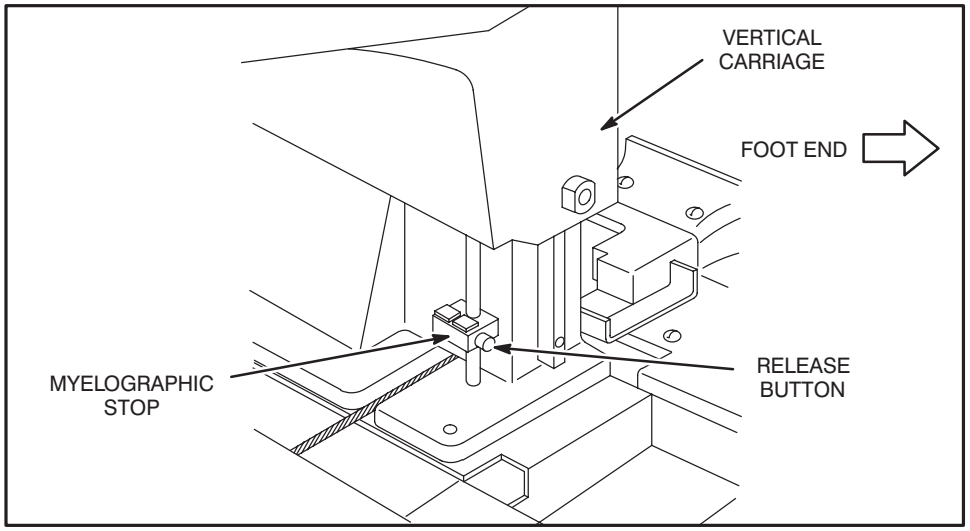
To adjust:

1. Press the button, move stop up or down and release it.
2. Then move the spot film device against it to make sure it is firmly seated.

3-15-1 Myelographic Interlock

1. With the horizontal stop OFF, verify the cone drive is not allowed.
2. Select the horizontal stop ON; verify the cone drive is allowed.

ILLUSTRATION 3−6
MYELOGRAPHIC STOP



3-16 Myelographic Boots (Optional)

These boots are intended for patient's support during myelography and are attached to slots in the standard foot rest. When using these boots, mount the **shoulder rest** to the table for added safety assurance. THE SHOULDER REST NEED NOT BE IN ACTUAL CONTACT WITH THE PATIENT.

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3-17 Cone Operation

The cone drive is inoperable when the table HORIZONTAL STOP is OFF. See Section 4-7.

Ensure that spot film device is not on top of patient when bringing cone in and out of Field of View.

3-17-1 Cone Interlocks

1. Set the UK CONE INTERLOCK to YES in C021. Go to applications.
2. With the cone parked and the compression lock OFF, verify the tabletop can be driven and powered ISFD/IDD motion is allowed.
3. With the cone in the FOV and the compression lock OFF, verify the tabletop can be driven and powered ISFD/IDD motion is allowed.
4. With the cone parked and the compression lock ON, verify the tabletop can be driven and powered ISFD/IDD motion is allowed.
5. With the cone in the FOV and the compression lock ON, verify the tabletop can NOT be driven and powered ISFD/IDD motion is NOT allowed. The lat/long lock will release with activation of the power assist handle and manual movement of the ISFD/IDD is allowed.
6. Set the UK CONE INTERLOCK to NO in C021. Go to applications.
7. With the cone in the FOV and the compression lock ON, verify the tabletop can be driven and powered ISFD/IDD motion is allowed.

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3-18 Lead Apron

1. Move the apron handle to position the lead apron. Position the handle between the two lines for horizontal work. Outside the rear line it will slide, as the table is angulated, in position for vertical work. Refer to Illustration 3−7.
2. To remove the Lead Apron.
   a. Pull out release button, and pull handle handle down.
   b. Slide apron out of track towards rear of spot film device.

WARNING

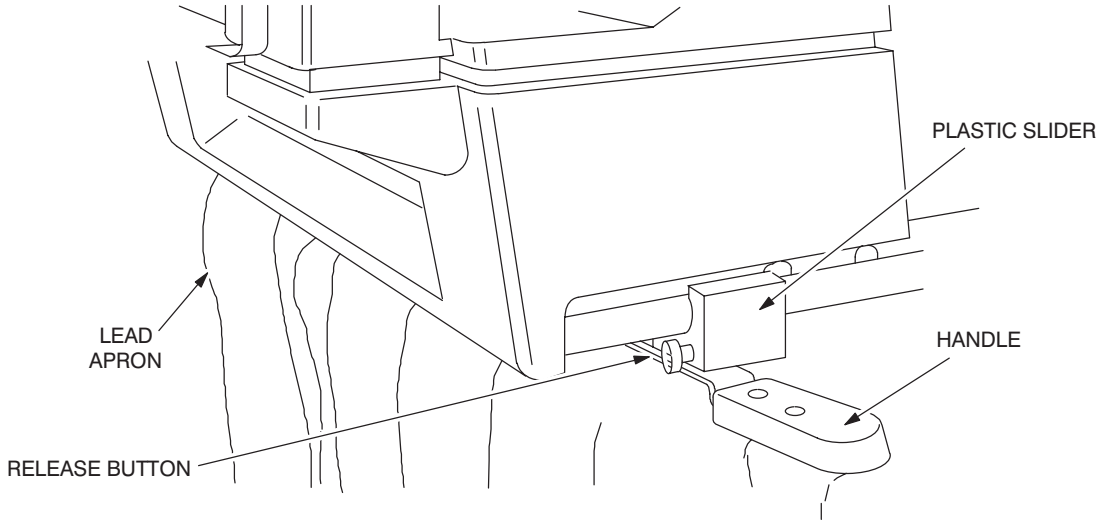
THE LEAD APRON PROTECTS THE OPERATOR FROM ANY SCATTER RADIATION. IT SHOULD REMAIN ATTACHED TO THE IMAGING DEVICE AT ALL TIMES.

WARNING

THIS LEAD APRON MUST BE INSTALLED IN ORDER TO MEET THE RADIATION PROTECTION REQUIREMENTS OF IEC 601−1−3. THIS LEAD APRON IS PART OF THE PRIMARY PROTECTIVE SHIELDING OF THE EQUIPMENT USED TO ATTENUATE THE RESIDUAL RADIATION FOR THE PROTECTION OF THE OPERATOR AND STAFF.

3. To Engage Lead Apron:
   a. Engage sliders, at top of apron assembly, into track (on bottom of spot film device) at head end of table.
   b. Move handle pin under plastic slider hole.
   c. Insert handle pin up into plastic slider hole (snaps in place).
4. The lead equivalent of the lead apron is 0.5 millimeters.

ILLUSTRATION 3−7
LEAD APRON



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3-19 Emergency Stop Button

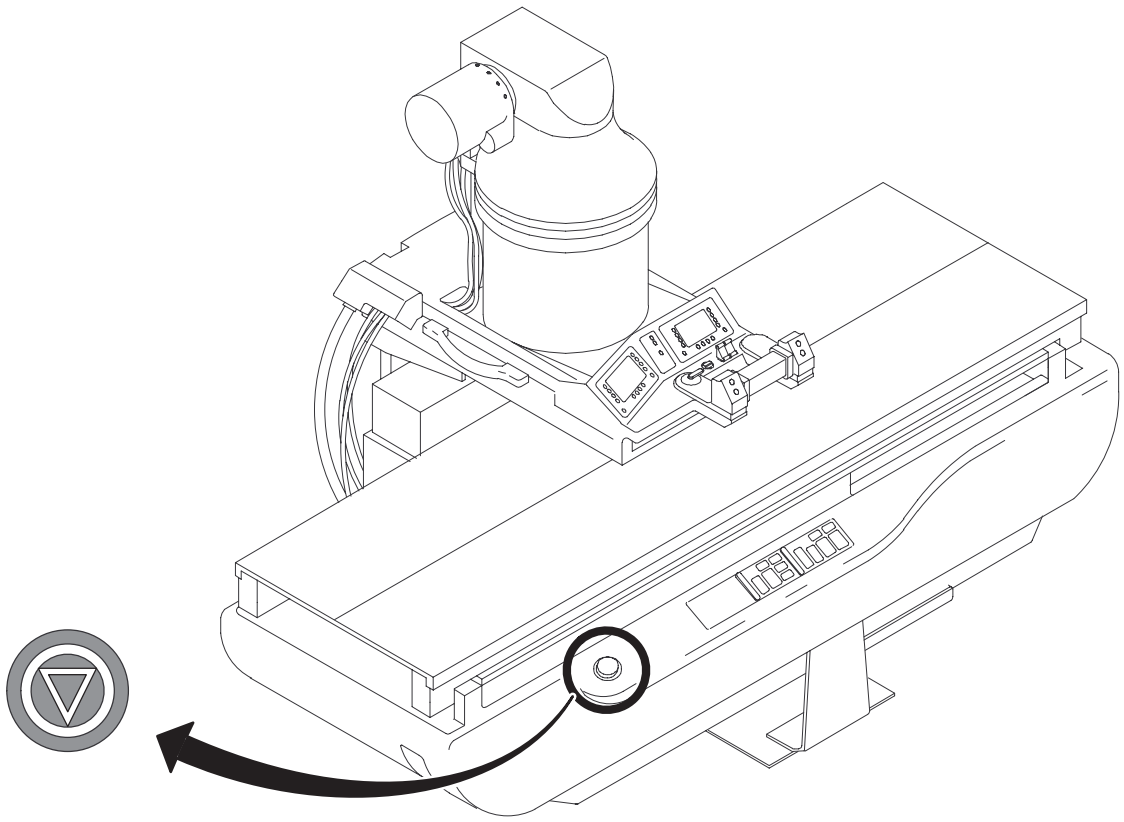
See Illustration 3−8.

In the event of unintended table angulation, or any other unintended motion, press the “Emergency Stop Button”. This will instantly cut power to the table.

To restore power:

- Verify table is safe to angulate or move.
- Push, turn, and release the “Emergency Stop Button”.

ILLUSTRATION 3−8
EMERGENCY STOP BUTTON



WARNING

IT IS EXTREMELY IMPORTANT TO CHECK THE OPERATION OF THIS BUTTON BEFORE EACH USE. THE PATIENT MUST NOT BE ADMITTED UNLESS THIS SAFETY FEATURE IS OPERATIONAL.

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3-20 Grounding Kit

3-20-1 Purpose

A grounding kit provides special equipment grounding for the Legacy Table and the Intelligent Spot Film Device/Intelligent Digital Device during procedures where the patient may become susceptible to electrical shock. When installed, voltage differences due to leakage current between various parts of the table and other properly grounded equipment are minimized. The kit limits voltage differences should an electrical fault occur.

Patient vicinity grounding is required for procedures such as cardiac catheterization, in which the patient is electrically susceptible.

For patient grounding to be effective, it is imperative to properly ground all equipment which may come in contact with the patient, or anyone touching the patient during a procedure.

3-20-2 Description

The grounding outlet panel is located on the Legacy table base. This panel has connections for grounding the Legacy Table top and other equipment such as a film changer and injector. The panel has four green grounding receptacles that accept grounding cord locking plugs.

Three grounding cables are supplied: one for the grounding table top, and two for the grounding accessories.

The table top grounding cable has locking pin plugs at both ends. This cable connects between one of the table base grounding receptacles and one of the table top grounding receptacles.

The accessory grounding cables are terminated with a locking pin plug at one end and a ground lug at the other end. These cables connect accessory equipment to the table base receptacles.

3-20-3 Instructions

To minimize the possibility of table top cable interference with patient, personnel, or equipment, carefully consider:

1. Direction and distance that table top will be extended
2. Placement of personnel
3. Placement of equipment for the intended procedure

Check all the table motions required for the procedure, with all ground cords, equipment, and personnel in place BEFORE bringing a patient into an examination room.

To connect a locking pin grounding cable to a ground receptacle, press the plug into the receptacle and rotate the plug slightly clockwise. The plug will remain engaged in the receptacle if properly connected.

To remove locking pins, push the plug in slightly and rotate counterclockwise until the plug is disengaged. A spring will push the plug out of the receptacle.

Note: Remove the table top ground cord for procedures in which the patient is not electrically susceptible, especially for procedures that require table angulation. Cord removal reduces the chance of damage to equipment from entanglement with the cord.

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SECTION 4
OPERATOR CONTROLS AND DISPLAYS

4-1 Operator Control Locations

See Illustration 4−1.

All Table and Imaging Device operator controls, displays, and indicators are located in two basic operator control areas:

- Table Side Control Panel
- Imaging Device Operator Control Panel

ILLUSTRATION 4−1
INTELLIGENT SPOT FILM DEVICE, INTELLIGENT DIGITAL DEVICE AND LEGACY TABLE OPERATOR CONTROL PANEL LOCATIONS

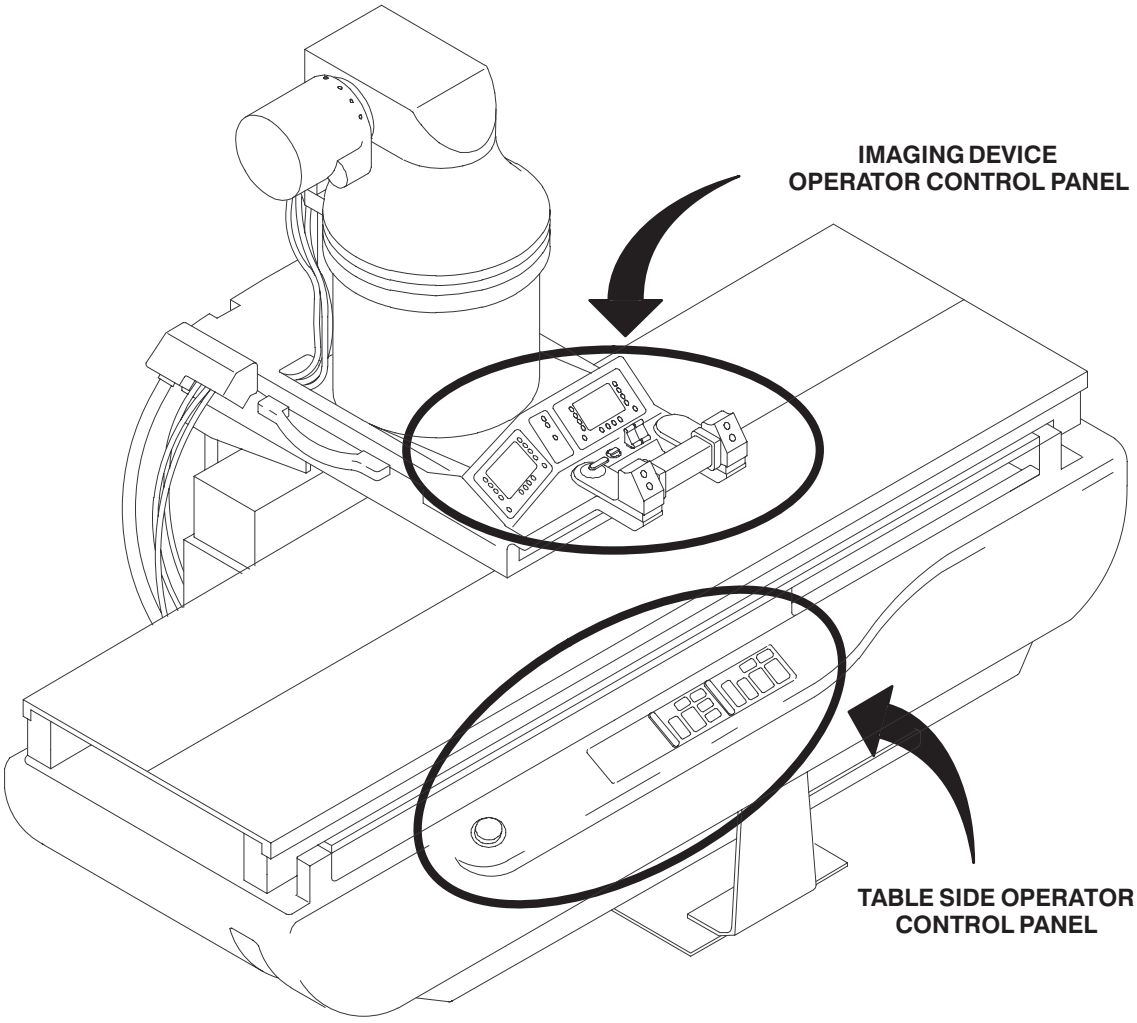

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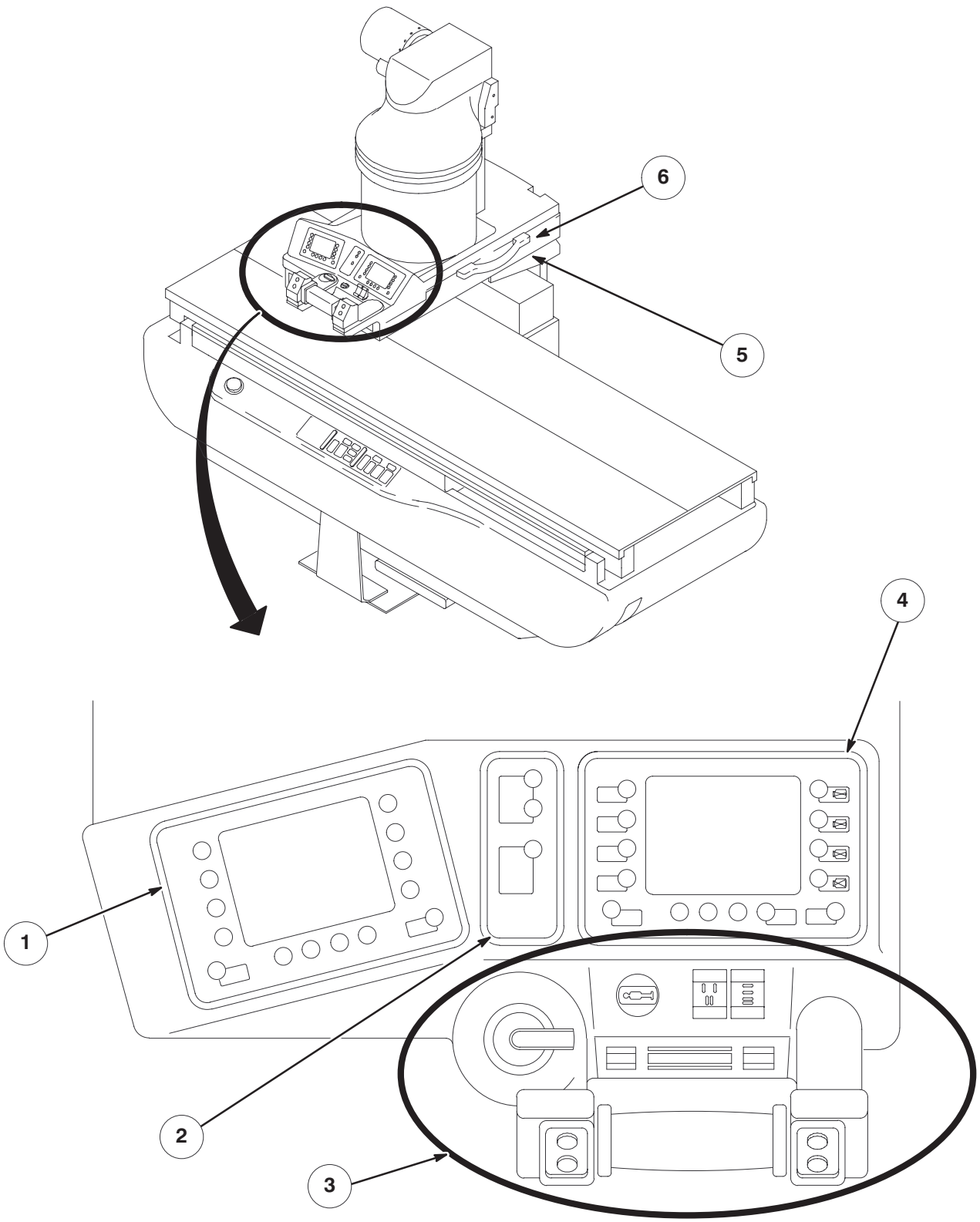
ILLUSTRATION 4−2
ISFD/IDD OPERATOR CONTROLS − MAIN GROUPS



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4-2 Imaging Device Operator Controls and Displays – Overview

See Illustration 4−2 and Table 4−1.

TABLE 4−1
IMAGING DEVICE OPERATOR CONTROLS − MAIN GROUPS

Item	Name	Description	Notes
1	Auxiliary Spot Film/Digital Operator Console	Provides: ● Cassette size display. ● Cassette format selections. ● Cassette format exposure sequence display. ● Advisory message display. ● Auxiliary Spot Film operator controls and displays. ● Digital DRS Frame Rate and FNR Controls. ● Technique Adjust operator controls. ● Anatomical Program operator controls.	Digital DRS Operator Controls and Display screen is available with the **Digital DRS** Option. Technique Adjust Operator Controls and Display screen is available with the **Technique Adjust** Option. Anatomical Program Operator Controls and Display screen is available with the **APR** Option. Digital is an option on Legacy systems.
2	Fluoro Presentation Operator Console	Provides: ● Fluoro Detail selections (HIGH, MEDIUM, LOW). ● Video reversal selections (VERTICAL, HORIZONTAL).	
3	Multi-function Operator Control Group	Provides: ● Table angulation control. ● Table Top Eight-Way Drive Control. ● Power Assist Spot Film/Digital Carriage Handle. ● X-Ray field size (collimator blades) controls. ● X-Ray Fluoroscopy exposure controls (3). ● X-Ray Record exposure controls (3).	
4	Main Spot Film/Digital Operator Console	Provides: ● Various Spot Film/Digital Controls (Locks, Cone, Grid). ● Record Mode selections (Spot, Digital, VTR). ● AUTO or MAN collimator blade control selection. ● Fluoro Field of View selections (3 or 4 possible). ● System status displays (X-Ray ON, HEAT WAIT, Fluoro Time remaining). ● Fluoro and Record technique display (Optional) ● Collimator position display (Optional)	Technique Displays are available with either the **APR** or **Technique Adjust** Options. Collimator position display is available with the **Virtual Collimation** Option.
5	Spot Film/Digital Device Carriage Lock Lever	Provides operator lock control of Spot Film/Digital Device carriage in either PARK or over-table positions.	
6	Spot Film/Digital Device Carriage Grasp Handles	Provides operator handles to aid in moving Spot Film/Digital carriage.	

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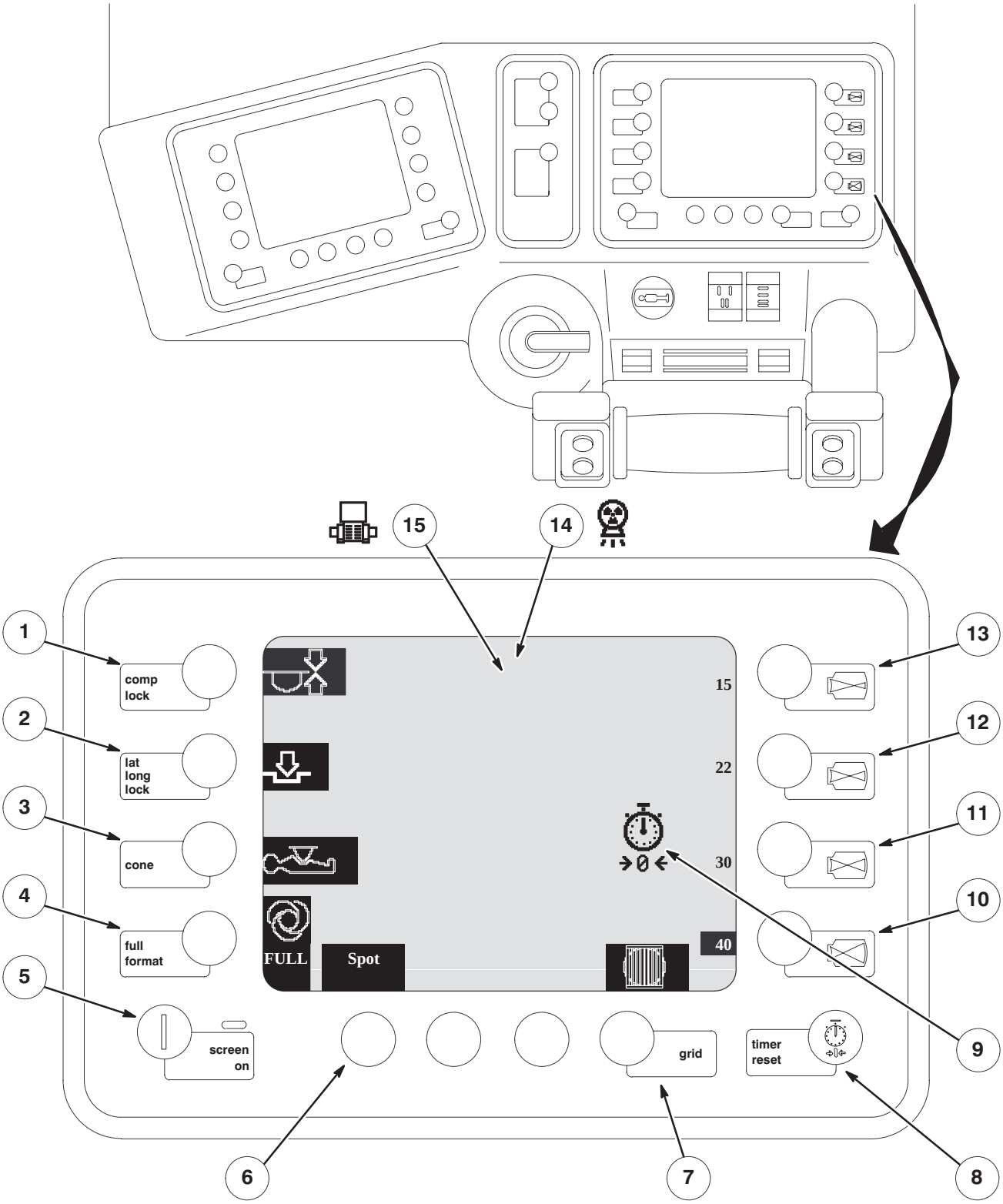
ILLUSTRATION 4−3
MAIN OPERATOR CONSOLE SCREEN − BASIC CONTROLS AND DISPLAYS



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4-3 Main Operator Console Screen

4-3-1 Main Operator Console Screen − Basic Controls and Displays

See Illustration 4−3 and Table 4−2.

TABLE 4−2
MAIN OPERATOR CONSOLE SCREEN − BASIC CONTROLS AND DISPLAYS

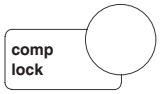
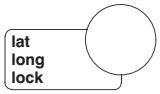
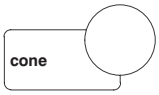
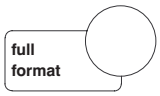
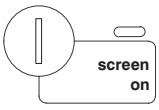
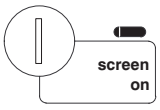
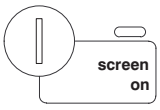
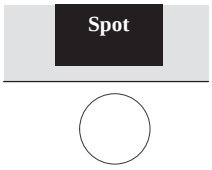
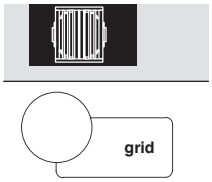
Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
1				Press to lock or unlock the vertical position of the imaging device.	Power Assist does not override the compression lock.
2				Press to apply or release both the lateral and longitudinal imaging device tower locks.	Power Assist overrides the lateral and longitudinal locks.
3				Press to move: • The compression cone from the park position into the field of view, or • The compression cone to the park position from the field of view.	The cone drive is disabled when the Table Horizontal Stop is OFF. The cone may be moved during Fluoroscopy. X-Ray record exposures are inhibited while cone is in motion.
4				Press to select either automatic or manual collimation.	FULL moves the collimator blades to the selected film format size or full field if in Digital mode. MAN allows manual control of the collimator blades within the selected film format size and Image Intensifier field sizes.
5				Press to turn on Operator console screen displays.	Console screen blanks after 15 minutes of inactivity.
6			Spot	Press to select spot film mode of operation.	Selecting **Spot** de-activates any other mode selections. **(Not available on Legacy−D)**
7				Press to move grid into field of view. Icon may be flashing when not in preferred position (set during installation).	The grid may be moved during Fluoroscopy. X-Ray record exposures are inhibited while grid is in motion.

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ILLUSTRATION 4−3 (CONTINUED)
MAIN OPERATOR CONSOLE SCREEN − BASIC CONTROLS AND DISPLAYS

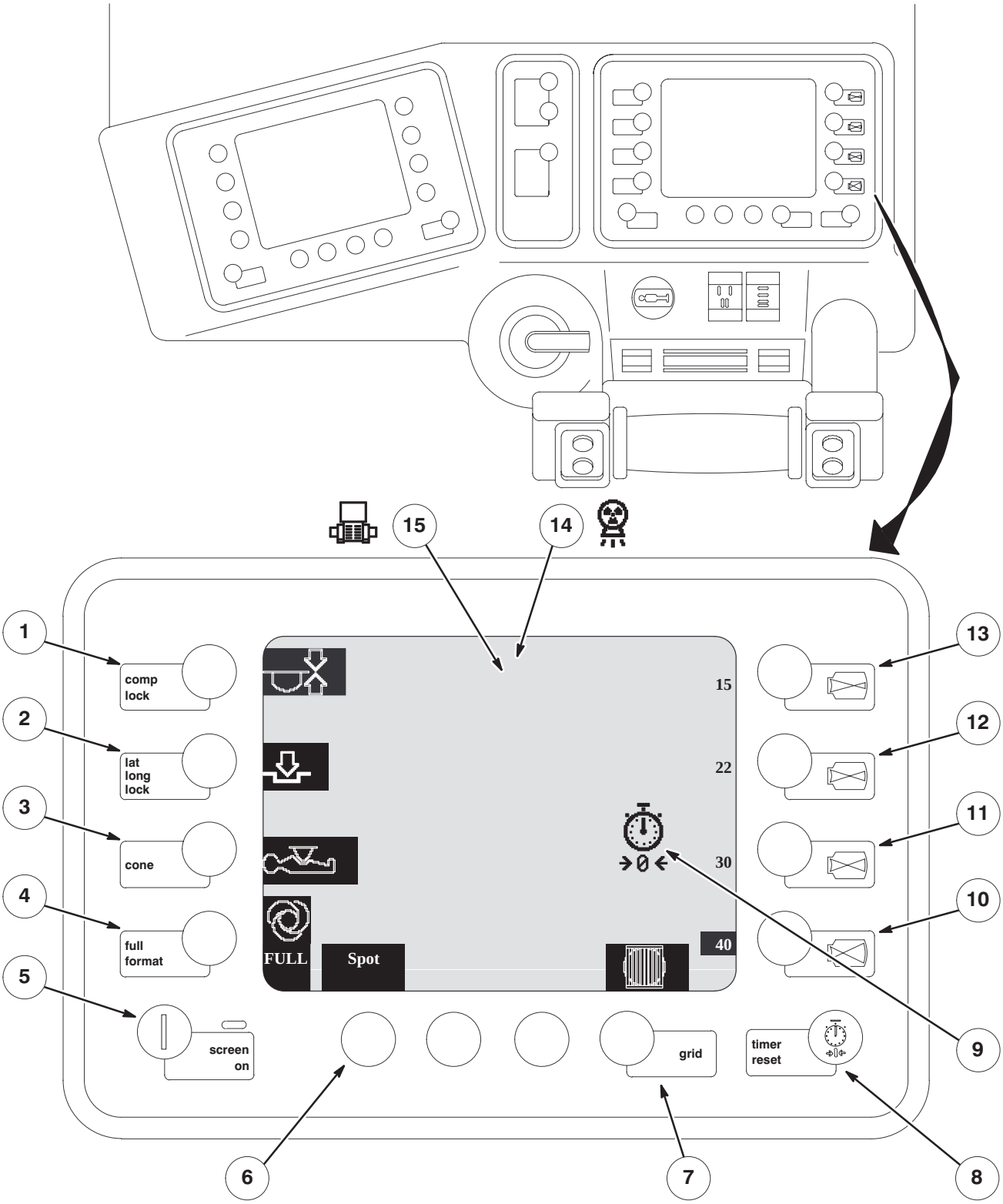

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TABLE 4−2 (CONTINUED)
MAIN OPERATOR CONSOLE SCREEN − BASIC CONTROLS AND DISPLAYS

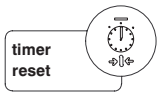
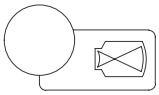
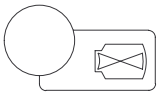
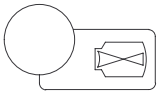
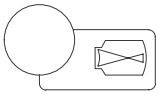
Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
8				Press to reset the fluoroscopic timer to 5 minutes.	Tone sounds at 5 minutes. Fluoro stops at 10 minutes.
9				Fluoro Timer Display. Flashing display starts after 4.8 minutes of fluoroscopy.	Displays only during Fluoro acquisition.
10		40 32 22	40 32 22	Press to select FULL or largest field of view. Deselects other FOV selections.	Field size display depends on size of Image Intensifier. 40 cm (16 inch), 30 cm (12 inch), 22 cm (9 inch)
11		30 22 16	30 22 16	Press to select MAG 1 field of view. Deselects other FOV selections.	Field size display depends on size of Image Intensifier. 40 cm (16 inch), 30 cm (12 inch), 22 cm (9 inch)
12		22 16 11	22 16 11	Press to select MAG 2 field of view. Deselects other FOV selections.	Field size display depends on size of Image Intensifier. 40 cm (16 inch), 30 cm (12 inch), 22 cm (9 inch)
13		16 11	16 11	Press to select MAG 3 field of view. Deselects other FOV selections. Optional for 22 cm (9 inch) Image Intensifier systems.	Field size display depends on size of Image Intensifier. 40 cm (16 inch), 30 cm (12 inch)
14				Indicator Display. Indicates X-Ray exposures are in progress.	
15				Indicator Display. Indicates X-Ray Tube is at maximum heat capacity.	

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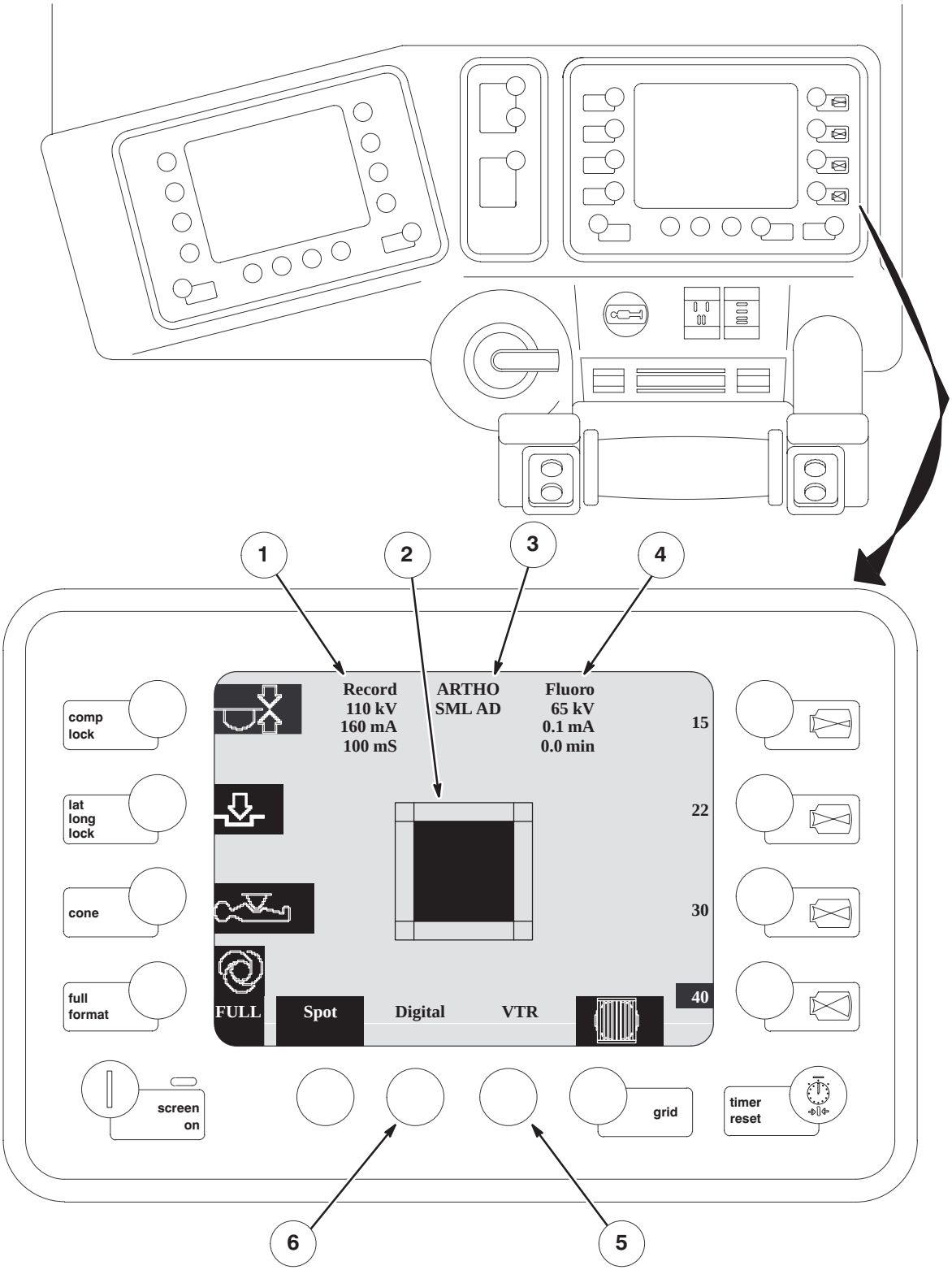
ILLUSTRATION 4−4
MAIN OPERATOR CONSOLE SCREEN − OPTIONAL CONTROLS AND DISPLAYS



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4-3-2 Main Operator Console Screen − Optional Controls and Displays

See Illustration 4−4 and Table 4−3.

TABLE 4−3
MAIN SPOT FILM/DIGITAL OPERATOR CONSOLE − OPTIONAL CONTROLS AND DISPLAYS

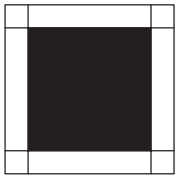
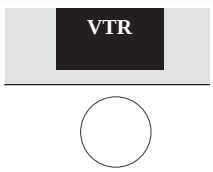
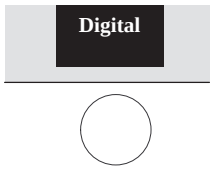
Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
1		**Record** **110 kV** **160 mA** **100 mS**		Displays: • Selected Record kV. • Selected Record mA. • Displays exposure time from the last exposure to the nearest millisecond.	Available with **Technique Adjust** or **APR** Options.
2				Display simulates actual collimated X-Ray field size (collimator blade position). Dimensions are relative to the full field available (FOV).	Available with **Virtual Collimation** Option.
3		**ORTHO** **SML AD**		Displays: • Selected Anatomical Procedure name. • Selected patient size.	Available with **APR** Option. Visible only between exposures.
4		**Fluoro** **65 kV** **0.1 mA** **0.0 min**		Displays: • Actual Fluoroscopic kV during Fluoro acquisition. • Selected Fluoroscopic kV during inactivity. • Actual Fluoroscopic mA only during Fluoroscopy. • Total cumulative fluoro exposure time from the last time that the total fluoro timer was reset.	Available with **Technique Adjust** or **APR** Options.
5			VTR	Press to select or de-select video tape recording (or VCR recording) of fluoroscopy.	Available with **VTR/VCR** Option.
6			Digital	Press to select or de-select digital mode of operation. Selecting **Digital** de-activates the other mode selections.	Available with **Digital DRS** Option, and on Legacy−D.

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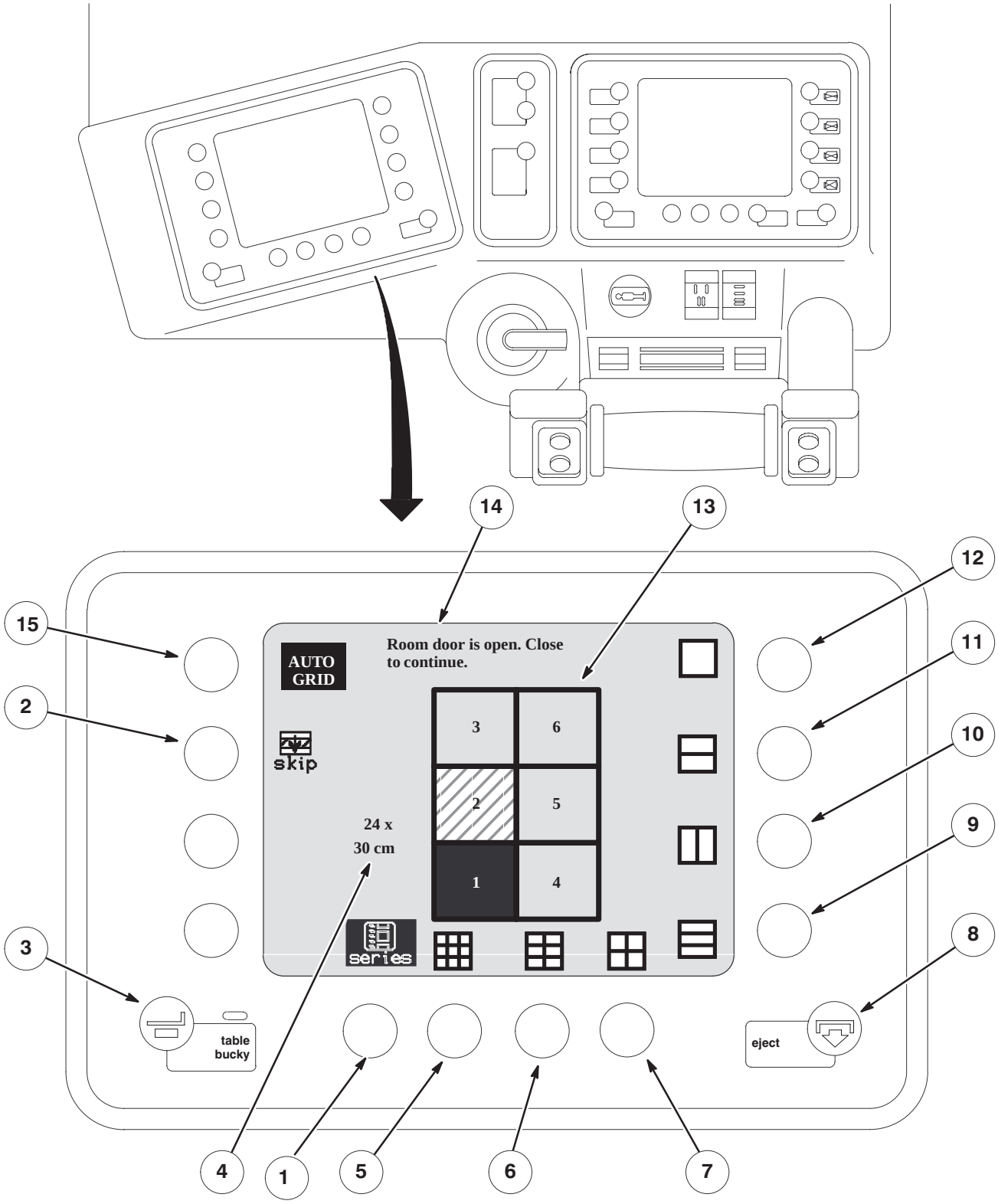
ILLUSTRATION 4−5
AUXILIARY SPOT FILM OPERATOR CONSOLE SCREEN − BASIC CONTROLS AND DISPLAYS



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4-4 Auxiliary Spot Film Operator Console Screen

4-4-1 Auxiliary Spot Film Operator Console Screen − Basic Controls and Displays

See Illustration 4−5 and Table 4−4.

TABLE 4−4
AUXILIARY SPOT FILM OPERATOR CONSOLE SCREEN − BASIC CONTROLS AND DISPLAYS

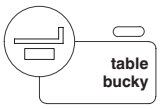
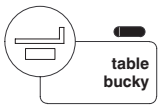
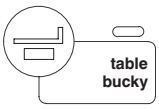
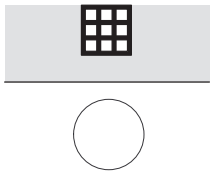
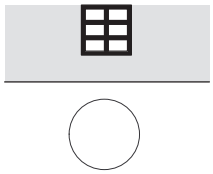
Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
1				Press for rapid sequence spot film operation. Must be selected for each new cassette.	De-activates when: • Last spot is exposed. • SERIES is deselected. • Mode change occurs (optional). **SERIES** may be selected automatically after mode changes (set during installation).
2				Press to advance from frame to frame without an exposure. Must be selected for each new cassette.	Available only with multiple film format selections.
3				Press to select Table Bucky as the receptor.	De-activates both console screens and controls except for: • COMP LOCK • LAT LONG LOCK • SPOT • DIGITAL De-selects any other mode selections (**Spot** or **Digital**).
4		**24 x 30 cm**		Displays size and orientation of cassette loaded into spot film.	
5				Press to select Nine-on-One Minispot film format.	See Table 5−1 for available cassette sizes and film format selection possibilities.
6				Press to select Six-on-One Minispot film format.	See Table 5−1.

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ILLUSTRATION 4−5 (CONTINUED)
AUXILIARY SPOT FILM OPERATOR CONSOLE − BASIC CONTROLS AND DISPLAYS

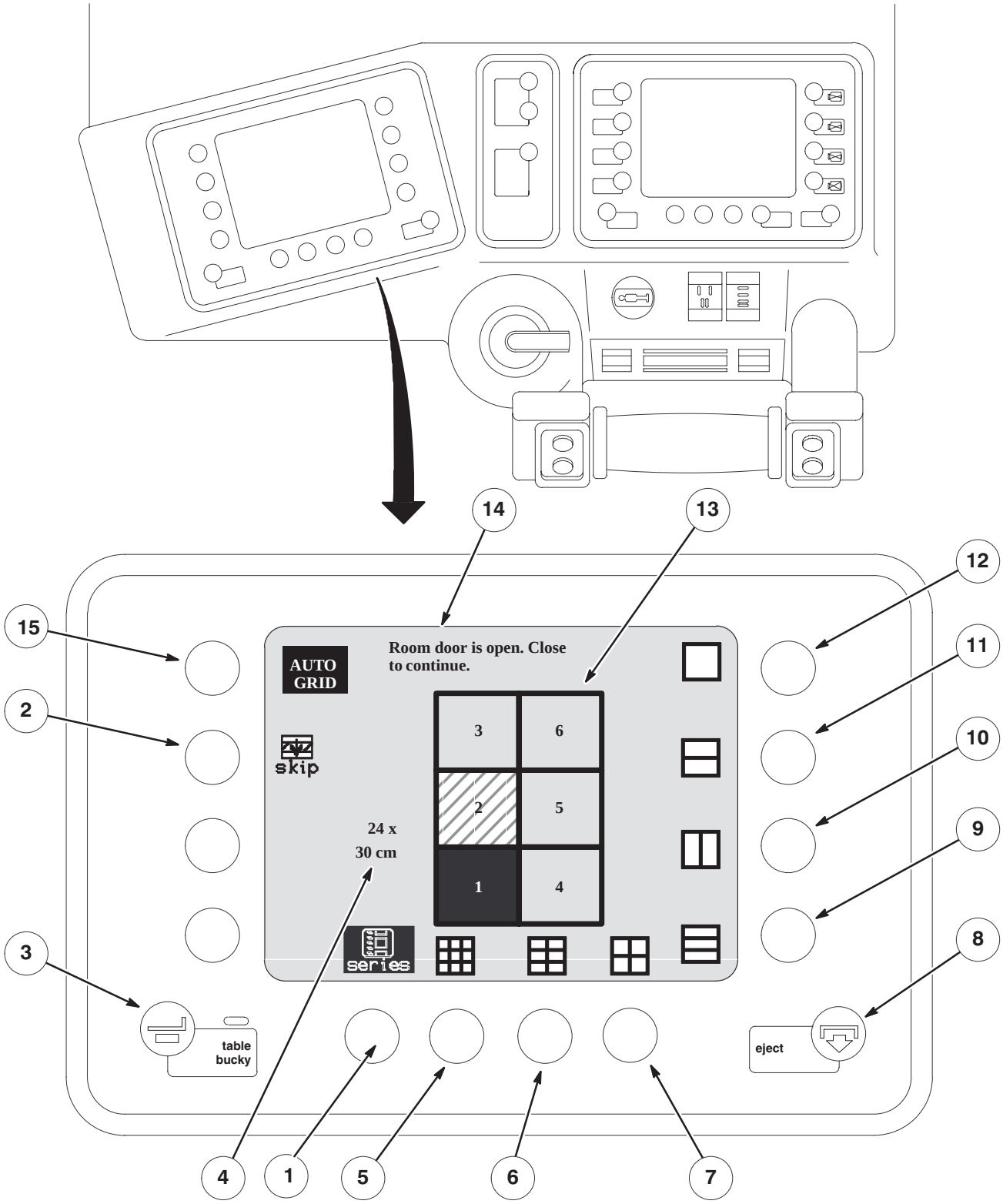

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TABLE 4−4 (CONTINUED)
AUXILIARY SPOT FILM OPERATOR CONSOLE − BASIC CONTROLS AND DISPLAYS

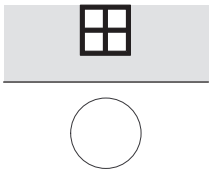
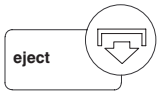
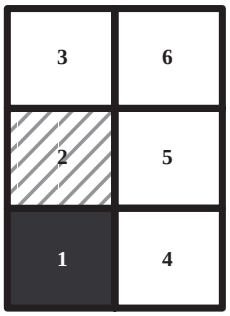
Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
7				Press to select Four-on-One film format.	See Table 5−1.
8				Press to: • Move the loaded cassette to the front loading port for unloading. or. . . • Move the unloaded carriage to the front loading port for cassette loading	
9				Press to select Three-on-One Longitudinal film format.	See Table 5−1.
10				Press to select Two-on-One Lateral film format.	See Table 5−1.
11				Press to select Two-on-One Longitudinal film format.	See Table 5−1.
12				Press to select One-on-One film format.	Available for all cassette sizes.
13				Display reflects film format selection and numerical sequence of exposures. Highlighted regions indicate previously exposed spots. Diagonal line highlighted region indicates the next spot for exposure. Non-highlighted regions indicate available unexposed spots.	Sequence may be changed using the SKIP control (moves next spot for exposure display).

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ILLUSTRATION 4−5 (CONTINUED)
AUXILIARY SPOT FILM OPERATOR CONSOLE − BASIC CONTROLS AND DISPLAYS

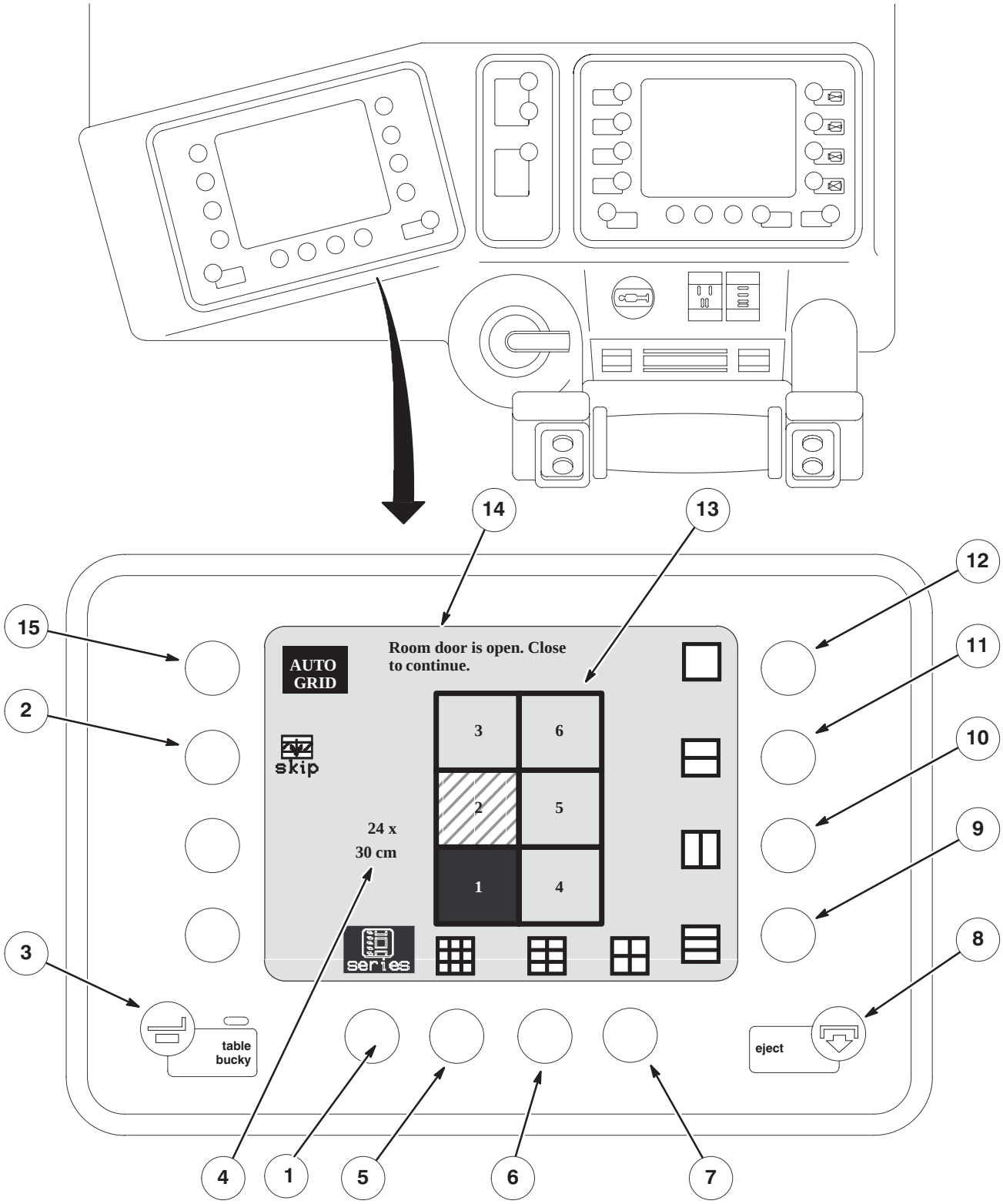

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TABLE 4−4 (CONTINUED)
AUXILIARY SPOT FILM OPERATOR CONSOLE − BASIC CONTROLS AND DISPLAYS

Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
14		**Room door is open. Close to continue.**		Advisory Message Display Window. Displays various operator messages to aid in system operation.	
15		**AUTO GRID**	**AUTO GRID**	Press top left button on left hand display to activate AUTO GRID. If AUTO GRID is not selected, the grid must be positioned manually. Manual grid positioning is always available. If AUTO GRID is selected, x−ray exposure start is somewhat delayed from fluoro to record exposure due to the time it takes for the grid to move into the field−of−view.	If AUTO GRID is selected, the grid automatically moves into the field−of−view with prep of a record exposure and switches out with prep release.The AUTO GRID button is displayed in both spot film and digital record applications. AUTO GRID is an optional feature.

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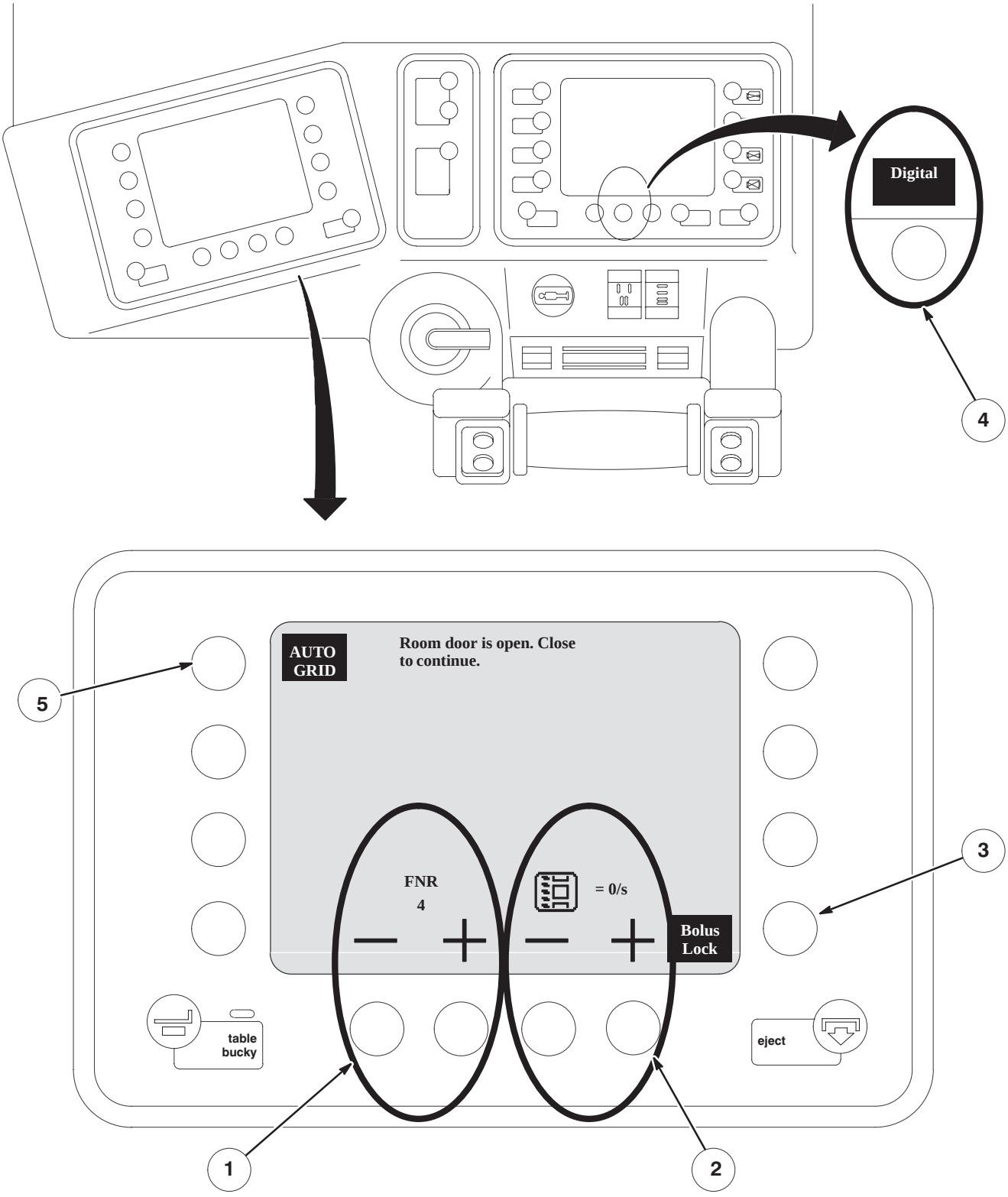
ILLUSTRATION 4−6
AUXILIARY DIGITAL OPERATOR CONSOLE



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4-4-2 Auxiliary Digital Operator Console − DRS

See Illustration 4−6 and Table 4−5.

TABLE 4−5
AUXILIARY DIGITAL OPERATOR CONSOLE

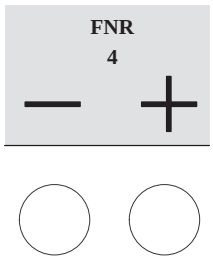
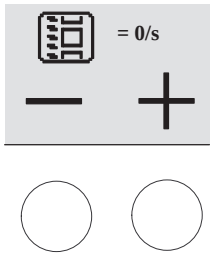
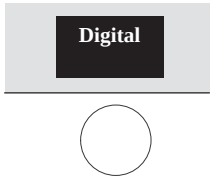
Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
1		FNR 4	FNR 4	Press to increase or decrease DRS Digital record Fluoro Noise Reduction (FNR).	DRS Digital FNR selections range from 0 to 13. Use with Fluoro Detail to optimize image quality and reduce patient or operator dose. See DRS Digital Operator Manual for more information about the FNR feature.
2		2 fr/sec = 0/s	2 fr/sec = 0/s	Press to increase or decrease DRS Digital record frame rate in frames per second. If a multi-frame rate is selected before prep, the selected digital record frame rate may be adjusted during the run.	DRS Digital frame rate selections range from 0 (single exposure) to 6 frames per second. See DRS Digital Operator Manual for more information about frame rate selections.
3		Bolus Lock	Bolus Lock	Disables one of the following combinations of Spot Film Device locks during a Digital PREP and EXPOSE cycle: • Longitudinal Lock • Lateral and Longitudinal Locks • Longitudinal and Compression Locks	Select your preferred lock disable combination during installation.
4		Digital	Digital	Press to select digital mode of operation. Changes Auxiliary Console to to DRS Digital Option Controls and Displays.	Available with **Digital DRS** Option.
5		AUTO GRID	AUTO GRID	Press top left button on left hand display to activate AUTO GRID. If AUTO GRID is not selected, the grid must be positioned manually. Manual grid positioning is always available. If AUTO GRID is selected, x−ray exposure start is somewhat delayed from fluoro to record exposure due to the time it takes for the grid to move into the field−of−view.	If AUTO GRID is selected, the grid automatically moves into the field−of−view with prep of a record exposure and switches out with prep release. The AUTO GRID button is displayed in both spot film and digital record applications. AUTO GRID is an optional feature.

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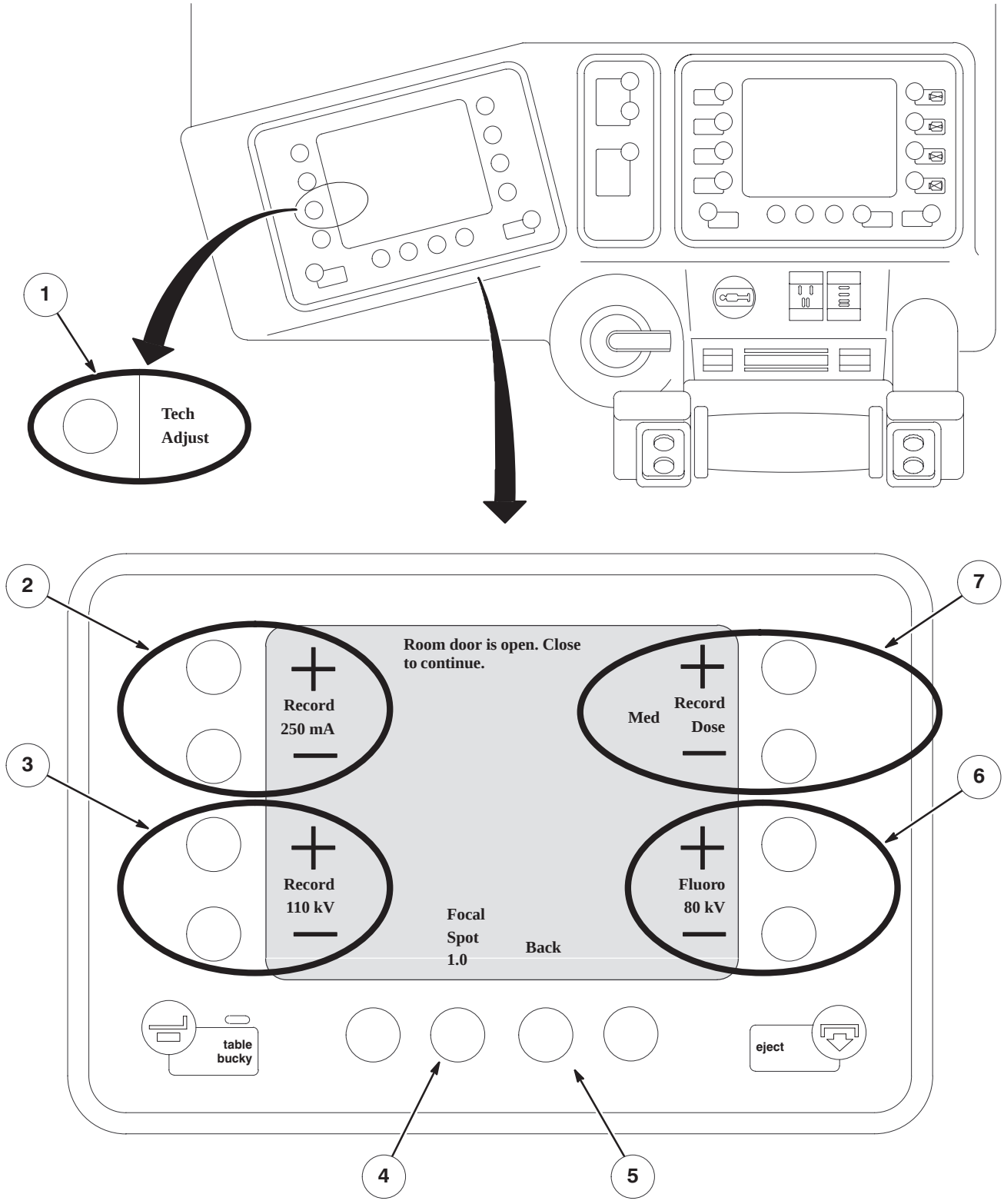
ILLUSTRATION 4−7
AUXILIARY OPERATOR CONSOLE SCREEN − TECHNIQUE ADJUST OPTION CONTROLS AND DISPLAYS



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4-4-3 Auxiliary Operator Console Screen − Technique Adjust Option Controls and Displays

See Illustration 4−7 and Table 4−6.

TABLE 4−6
AUXILIARY SPOT FILM OPERATOR CONSOLE − TECHNIQUE ADJUST OPTION CONTROLS AND DISPLAYS

Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
1	○ Tech Adjust			Press to select technique adjust mode of operation. Changes Auxiliary Console to to Technique Adjust Option Controls and Displays.	When the Technique Adjust Option is active, the button selection appears on: • Basic Auxiliary ControlConsole • DRS Digital Option ControlConsole
2	○ + Record 250 mA ○ −	Record 250 mA	Record 250 mA	Press to increase or decrease Record X-Ray exposure mA.	
3	○ + Record 110 kV ○ −	Record 110 kV	Record 110 kV	Press to increase or decrease Record X-Ray exposure kV.	
4	Focal Spot 1.0 ○	Focal Spot 1.0	Focal Spot 1.0	Press to change X-Ray Tube focal spot selection.	

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ILLUSTRATION 4−7 (CONTINUED)
AUXILIARY OPERATOR CONSOLE SCREEN − TECHNIQUE ADJUST OPTION CONTROLS AND DISPLAYS

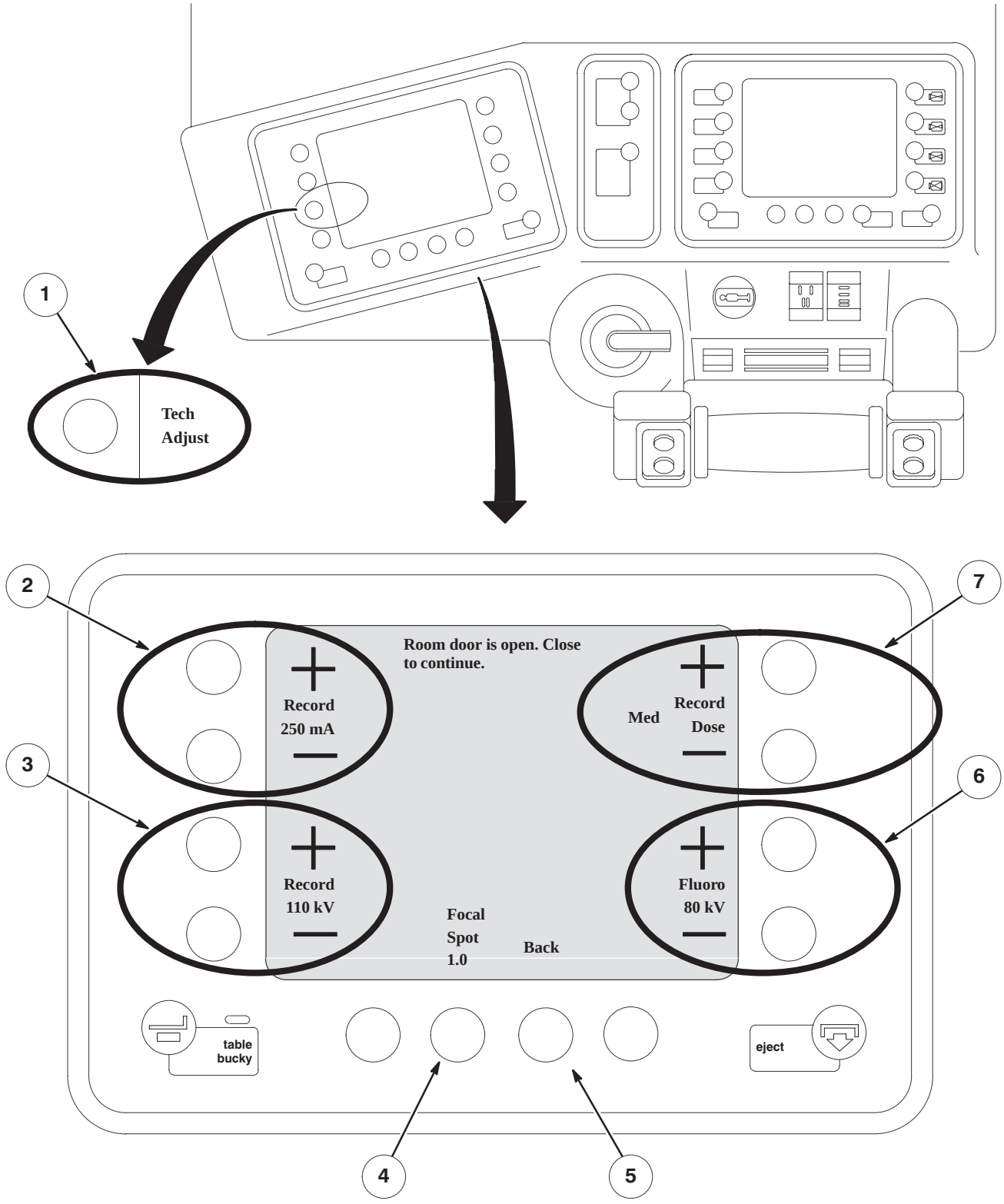

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TABLE 4−6 (CONTINUED)
AUXILIARY OPERATOR CONSOLE SCREEN − TECHNIQUE ADJUST OPTION CONTROLS AND DISPLAYS

Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
5	Back	Back	Back	Press to return Auxiliary Console to previous Control and Display operation (Basic or DRS Digital Option).	
6	+ Fluoro 80 kV −	Fluoro 80 kV	Fluoro 80 kV	Press to increase or decrease Fluoroscopy exposure kV.	
7	+ Record Dose −			For Spot Film mode, selections are film Density adjustments: • **+1** • **+2** • **Normal** • **−1** • **−2** For Digital mode, selections are Record Dose adjustments: • **High** • **Med** • **Low**	**Record Dose Adjust (Density Adjust):** Select positive numbers for darker films and negative numbers for lighter films. Each single step increase increases film density by 25%. Each single step decrease decreases film density by 20%. **Record Dose Adjust:** Selects level of X-Ray photon density required at the Image Intensifier Input to achieve a nominal image brightness. Use **High** for low noise, fine detail, images (small catheters for example). Use **Low** for larger patients to achieve an acceptable image with more noise. Use **Med** as a compromise between **High** and **Low**.

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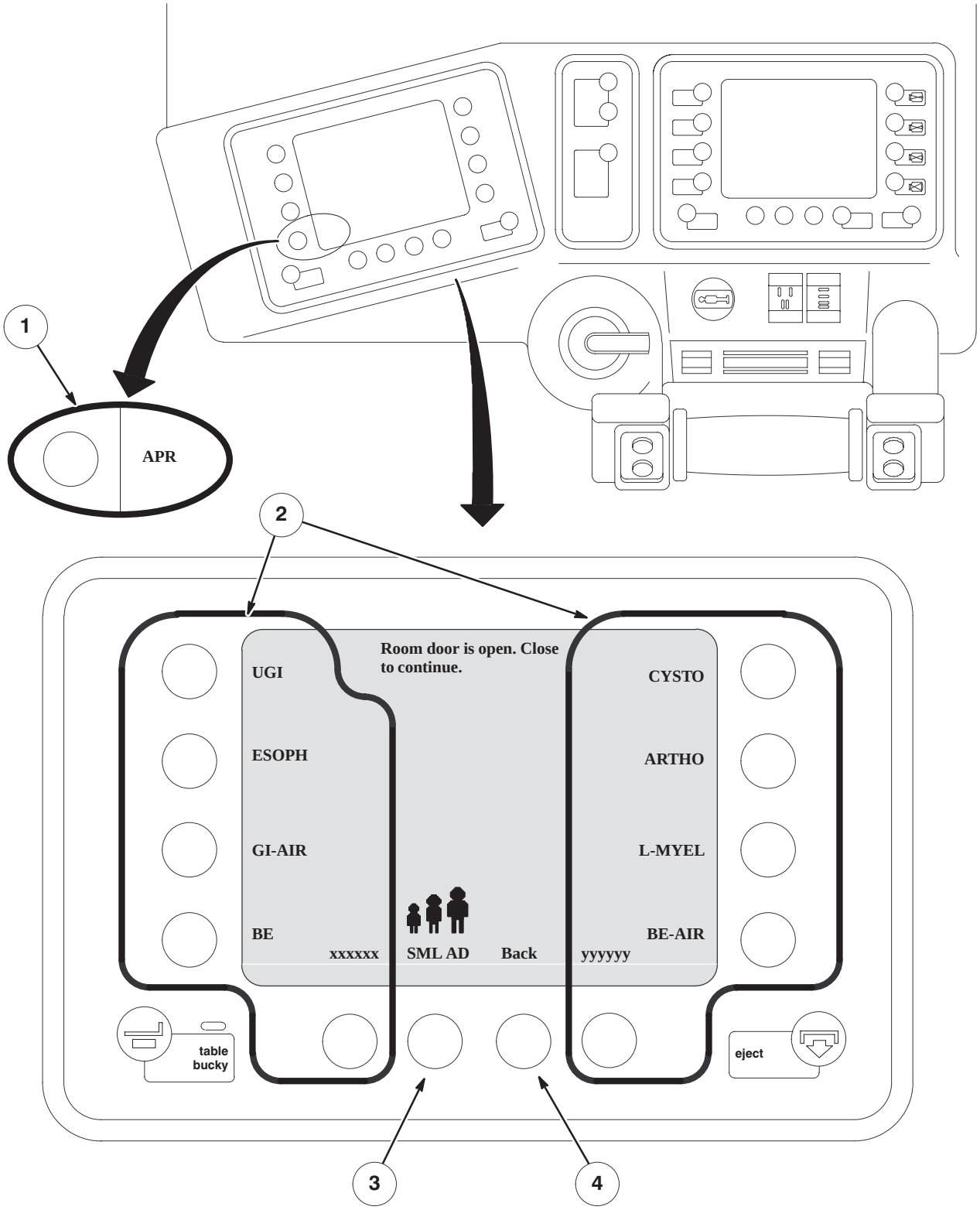
ILLUSTRATION 4−8
AUXILIARY OPERATOR CONSOLE SCREEN − ANATOMICAL PROCEDURE OPTION CONTROLS AND DISPLAYS



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4-4-4 Auxiliary Operator Console Screen − Anatomical Procedure Controls and Displays

See Illustration 4−8 and Table 4−7.

TABLE 4−7
AUXILIARY SPOT FILM OPERATOR CONSOLE − ANATOMICAL PROCEDURE OPTION CONTROLS AND DISPLAYS

Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
1	APR			Press to select Anatomical Procedure select and adjust screen. Changes Auxiliary Console to to APR Procedure Option Controls and Displays.	When the APR Option is active, the button selection appears on: • Basic Auxiliary ControlConsole • DRS Digital Option ControlConsole
2	UGI ESOPH GI-AIR BE xxxxxx	UGI ESOPH GI-AIR BE xxxxxx	UGI ESOPH GI-AIR BE xxxxxx	Selects up to 10 pre-set AnatomicalProcedures. Selecting a procedure changes the Fluoro and Record technique settings to the pre-set values determined in the Procedure Edit feature. To cancel any selection: • Re-select button for highlighted procedure, or • Select another procedure.	The Procedure names shown are from the samples provided with the system. Actual Procedure names for the 10 positions are determined by each user according to hospital or doctorpreference. The displayed procedures are from the “Assistance” category of the Procedure Edit menu. See Procedure Editing Operator Manual for additional details.

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ILLUSTRATION 4−8 (CONTINUED)
AUXILIARY OPERATOR CONSOLE SCREEN − ANATOMICAL PROCEDURE OPTION CONTROLS AND DISPLAYS

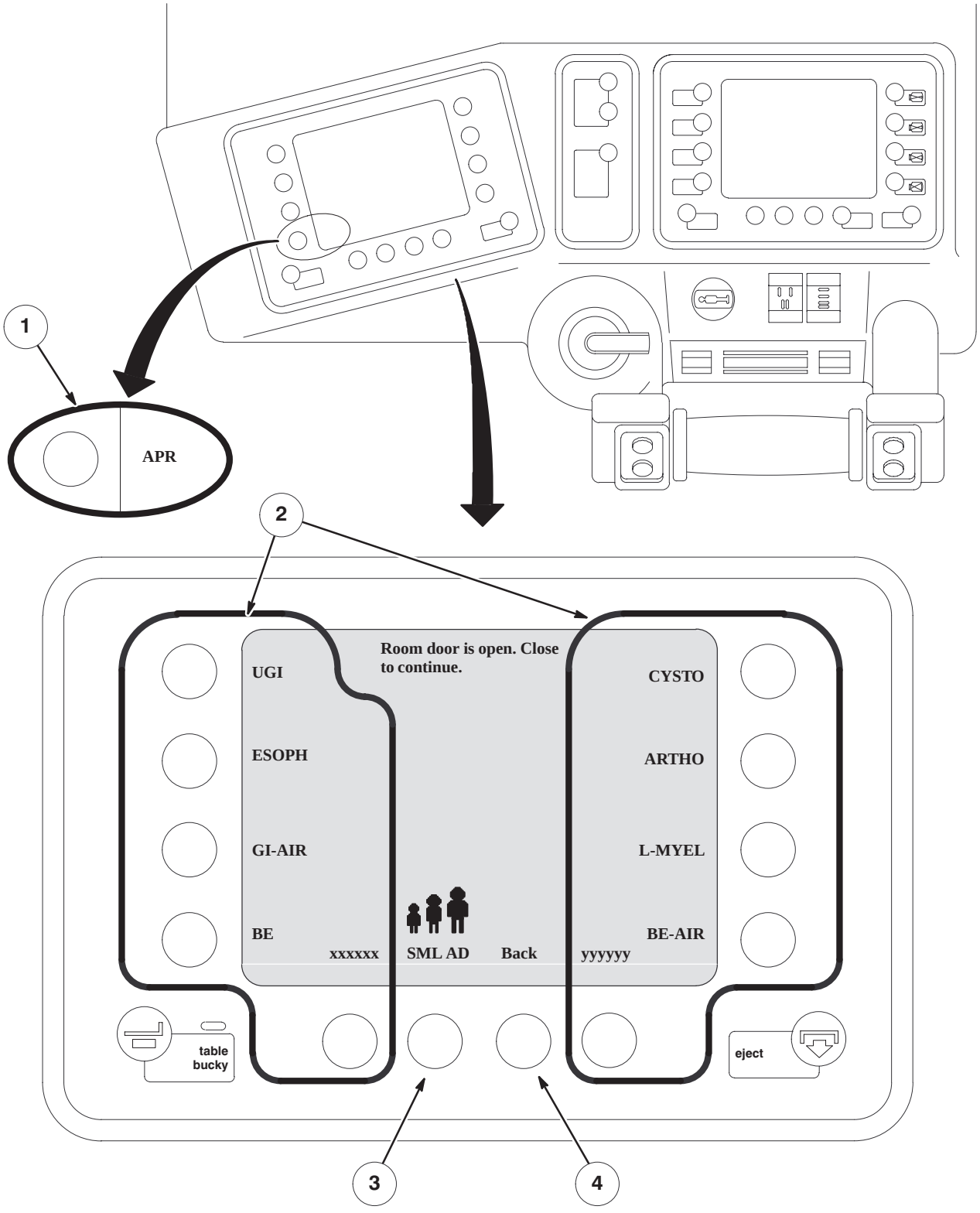

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TABLE 4–7 (CONTINUED)
AUXILIARY OPERATOR CONSOLE SCREEN – ANATOMICAL PROCEDURE OPTION CONTROLS AND DISPLAYS

Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
2 (cont)	CYSTO ARTHO L-MYEL BE-AIR yyyyyy	CYSTO ARTHO L-MYEL BE-AIR yyyyyy	CYSTO ARTHO L-MYEL BE-AIR yyyyyy	Selects up to 10 pre-set AnatomicalProcedures. Selecting a procedure changes the Fluoro and Record technique settings to the pre-set values determined in the Procedure Edit feature. To cancel any selection: • Re-select button for highlighted procedure, or • Select another procedure.	The Procedure names shown are from the samples provided with the system. Actual Procedure names for the 10 positions are determined by each user according to hospital or doctor preference. The displayed procedures are from the “Assistance” category of the Procedure Edit menu. See Procedure Editing Operator Manual for additional details.
3	SML AD	SML AD	SML AD	Repeatedly press to select up to 6 possible patient size selections. Default Patient Size Names are: • **SML AD** (Small Adult) • **MED AD** (Medium Adult) • **LGE AD** (Large Adult) • **LGE P** (Large Pediatric) • **MED P** (Medium Pediatric • **SML P** (Small Pediatric	The Patient Size names shown are from the samples provided with the system. Actual Patient Size names for the 6 selections are determined by each user according to hospital or doctor preference. See Procedure Editing Operator Manual for additional details.
4	Back	Back	Back	Press to return Auxiliary Console to previous Control and Display operation (Basic or DRS Digital Option).	

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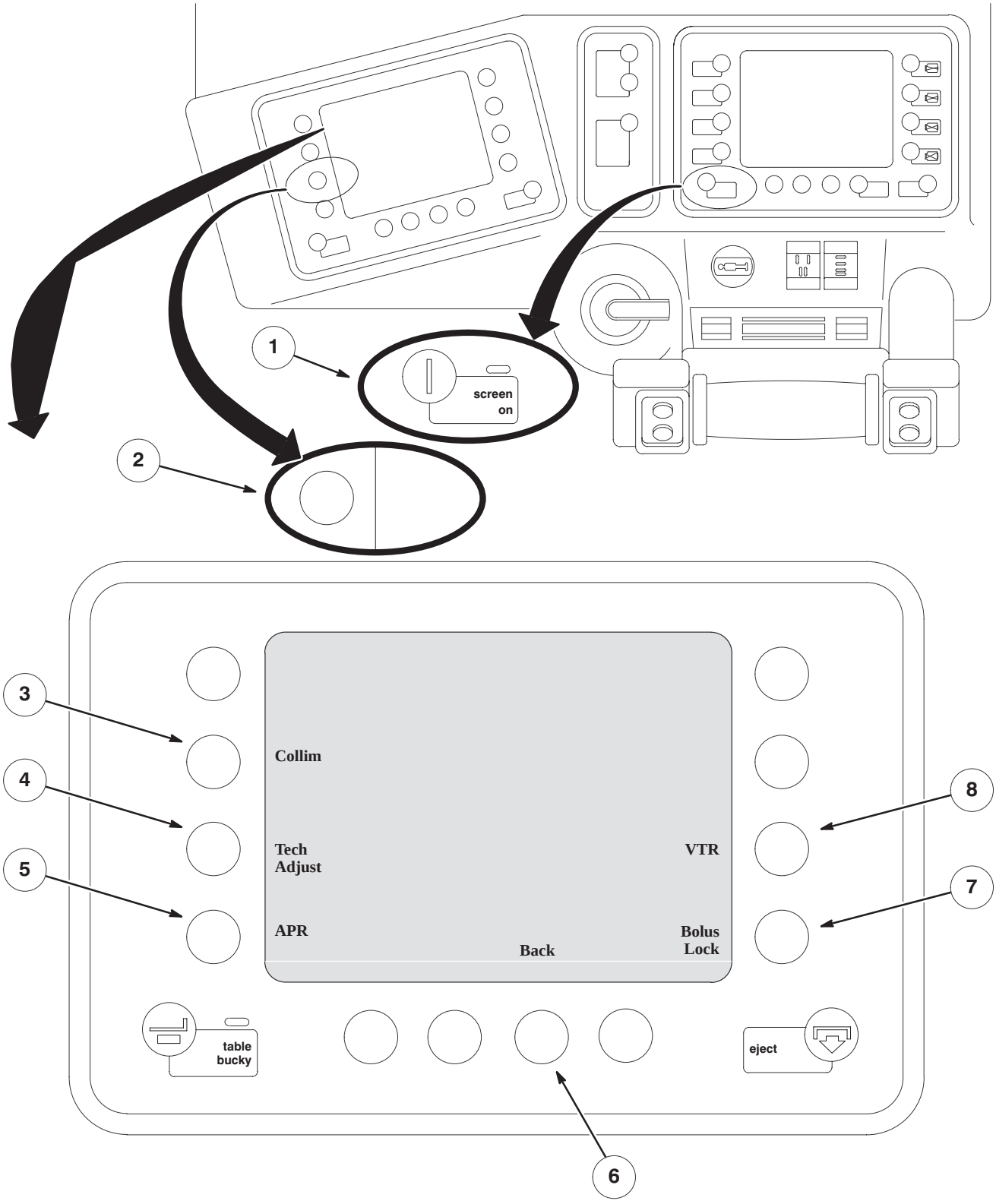
ILLUSTRATION 4−9
AUXILIARY OPERATOR CONSOLE SCREEN − DISPLAY PREFERENCE SCREEN, CONTROLS, AND DISPLAYS



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4-4-5 Auxiliary Operator Console Screen − Display Preference Screen, Controls, and Displays

See Illustration 4−9 and Table 4−8.

TABLE 4−8
AUXILIARY OPERATOR CONSOLE SCREEN − DISPLAY PREFERENCE SCREEN, CONTROLS, AND DISPLAYS

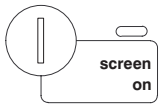
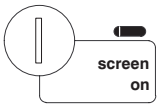
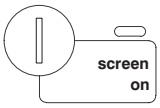
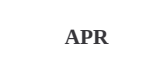
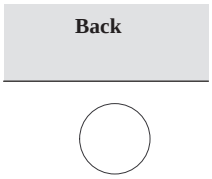
Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
1				To turn ON Display Preference Screen: 1. Press and hold **Screen on** button, 2. Press 3rd, top left, button on Auxiliary Spot Film Operator Console (Item 2) The Auxiliary Spot Film Operator Console displays the Display Preference Screen (Illustration 4−9).	In order to activate the Display Preference Screen, the Auxiliary Spot Film Console must display either: • Basic Auxiliary Control Console, or • DRS Digital Option Control Console.
2					
3				Press to activate the optional Virtual Collimation display on the Main Spot Film Operator Console.	Display only appears if **Virtual Collimation** is purchased as an option.
4				Press to activate the optional Technique Adjust displays on the Main and Auxiliary Spot Film Operator Consoles.	Display only appears if **Technique Adjust** is purchased as an option.
5				Press to activate the optional APR displays on the Main and Auxiliary Spot Film Operator Consoles.	Display only appears if **APR** is purchased as an option.
6		Back	Back	Press to return Auxiliary Console to previous Control and Display operation (Basic or DRS Digital Option).	
7				Press to activate the **Bolus Lock** button screen display on the Auxiliary Spot Film Operator Console in Digital mode.	
8				Press to activate the **VTR** button screen display on the Main Spot Film Operator Console.	Display only appears if **VTR/VCR** is an option.

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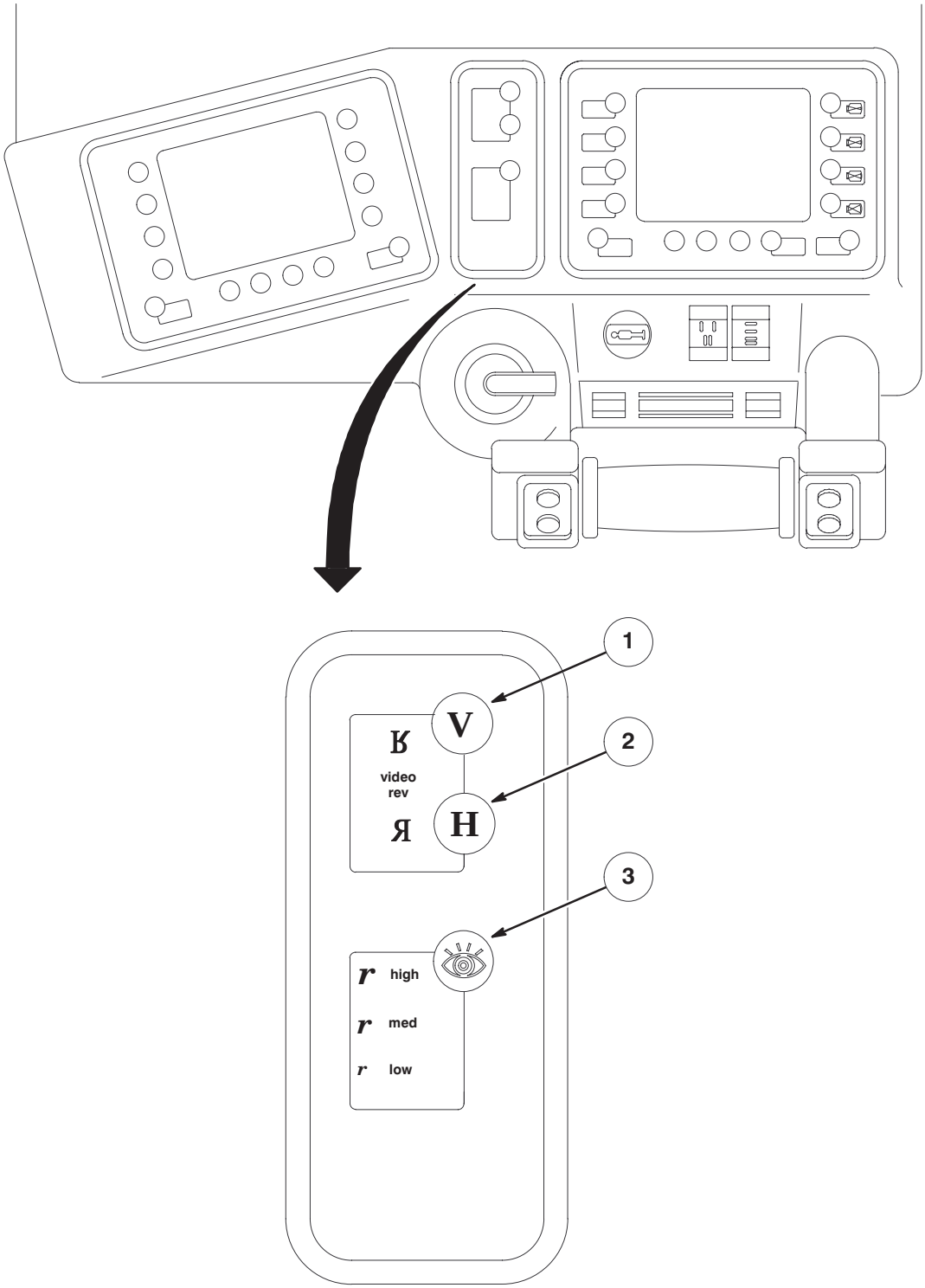
ILLUSTRATION 4−10
SPOT FILM/DIGITAL FLUORO PRESENTATION OPERATOR CONSOLE CONTROLS AND DISPLAYS



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4-5 Spot Film/Digital Fluoro Presentation Operator Console

See Illustration 4−10 and Table 4−9.

TABLE 4−9
SPOT FILM/DIGITAL FLUORO PRESENTATION OPERATOR CONSOLE CONTROLS AND DISPLAYS

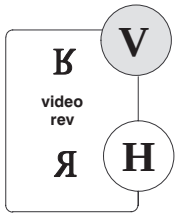
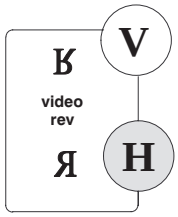
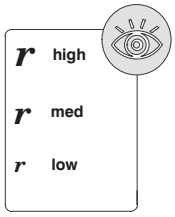
Item	Operator Control	Activated Display	De-Activated Display	Description	Notes
1		Ƃ		Press **V** to vertically reverse fluoroscopy video presentation.	Active when X−Rays are OFF.
2		Я		Press **H** to horizontally reverse fluoroscopy video presentation.	Active when X−Rays are OFF.
3		*r* *r* *r*		Fluoroscopy Detail (Dose) selection. Repeat pressing to select: • *r* for HIGH detail dose fluoroscopy. • *r* for MEDIUM detail dose fluoroscopy. • *r* for LOW detail dose fluoroscopy.	**Fluoro Detail:** Selects level of X-Ray photon density required at the Image Intensifier Input to achieve a nominal image brightness. Use **High** for low noise, fine detail, images (small catheters for example). Use **Low** for larger patients to achieve an acceptable image with more noise. Use **Med** as a compromise between **High** and **Low**. Use with **FNR** to optimize fluoro image quality and reduce patient or operator dose.

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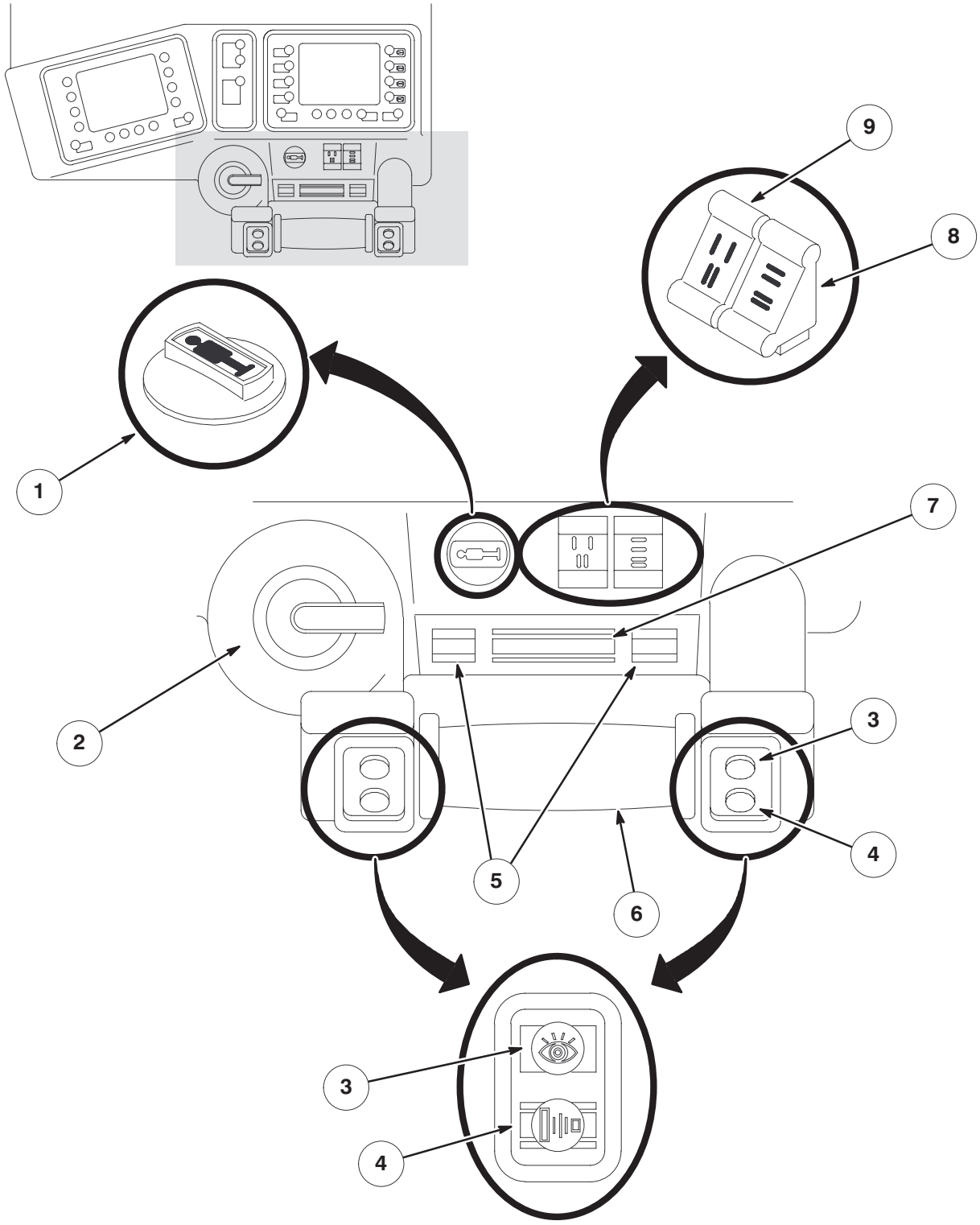
ILLUSTRATION 4−11
SPOT FILM/DIGITAL MULTI-FUNCTION OPERATOR CONTROL GROUP CONTROLS



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4-6 Spot Film/Digital Multi-Function Operator Control Group

See Illustration 4−11 and Table 4−10.

TABLE 4−10
SPOT FILM/DIGITAL MULTI-FUNCTION OPERATOR CONTROL GROUP CONTROLS

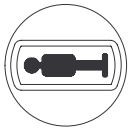
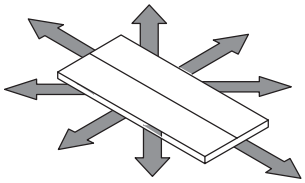
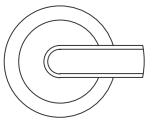
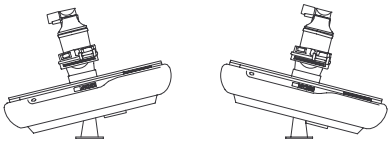
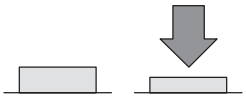
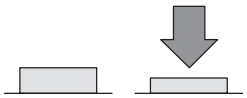
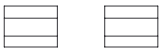
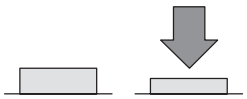
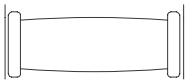
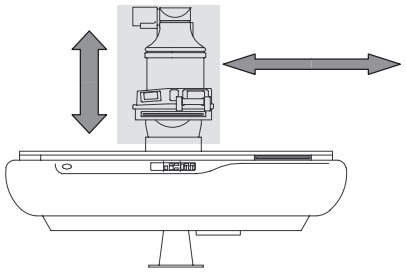
Item	Operator Control	Motion	Description
1			Eight-Way Table Top Drive Control. Move control in any of eight directions to drive table top in desired direction: ● head-to-foot ● front-to-rear ● oblique
2			Variable speed Table Tilt Control. Rotate Control: ● **CCW** to tilt table Trendelenburg. ● **CW** to tilt table Vertically.
3			Fluoroscopy Exposure Control portion of Integrated Fluoro and Expose switch. Use for rapid fluoroscopy. Press to initiate Fluoroscopy (may be used with foot switch). Record EXPOSE may be initiated if this switch and the PREP + EXPOSE bar is pressed (item 7).
4			Radiographic Exposure Control portion of Integrated Fluoro and Expose switch. Use for rapid spot film and digital record exposures. Press to initiate both PREP + EXPOSE cycle.
5			Fluoroscopy Exposure Control switch (2). May be used with foot switch. Record EXPOSE may be initiated if this switch and the PREP + EXPOSE bar is pressed (item 7).
6			Variable speed Power Assist Handle. Grasp to move spot film device vertically or longitudinally. Longitudinal and Vertical motion is de-activated: ● During PREP/EXPOSE cycle (spot film). ● During EXPOSE (spot film or digital). Panning motion allowed during digital PREP/EXPOSE cycle using **Bolus Lock**. Vertical motion is also de-activated: ● While parking spot film device (within 20 mm of maximum SID. ● When spot film device is parked. ● When Compression Lock is activated.

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ILLUSTRATION 4−11 (CONTINUED)
SPOT FILM/DIGITAL MULTI-FUNCTION OPERATOR CONTROL GROUP CONTROLS

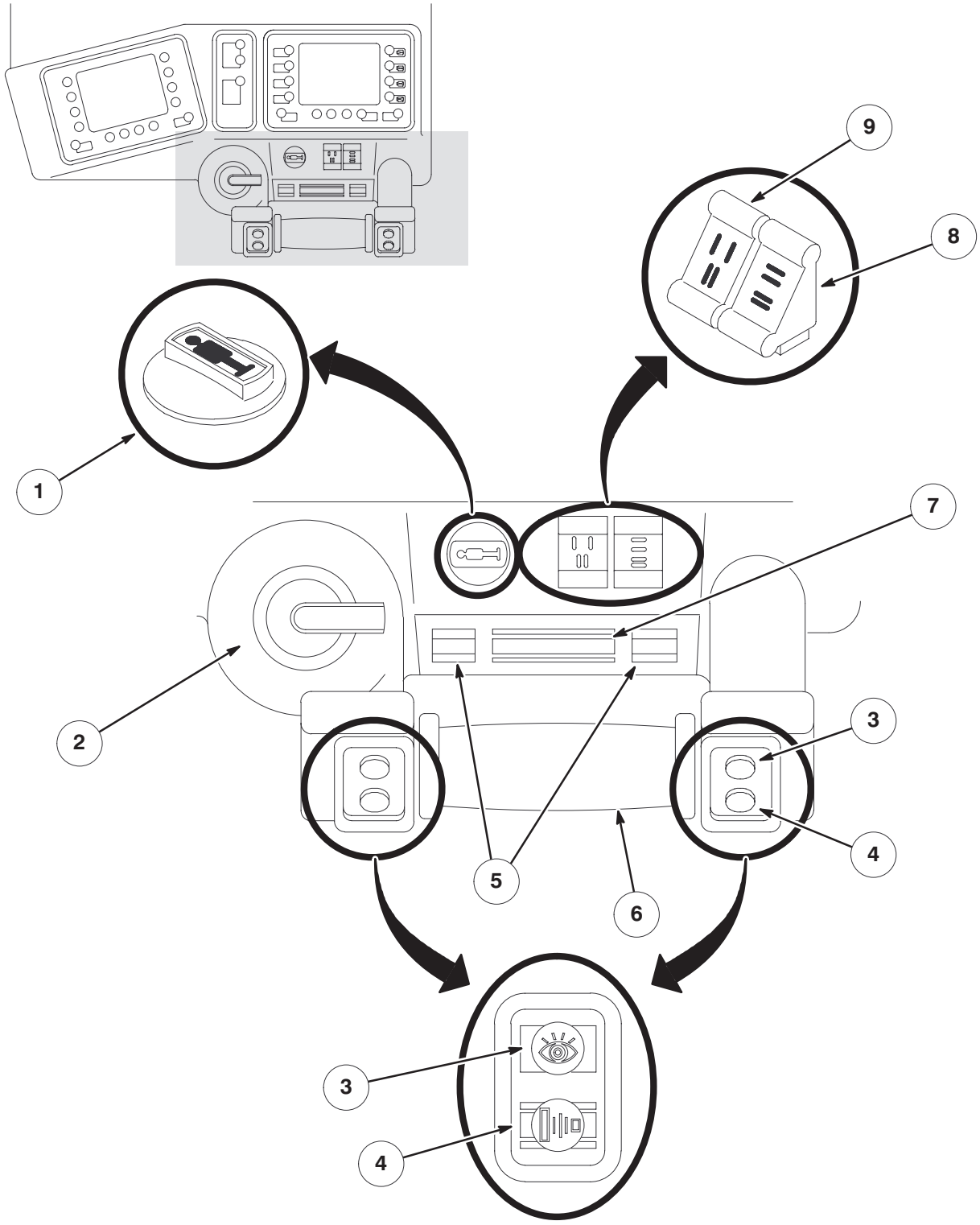

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TABLE 4−10 (CONTINUED)
SPOT FILM/DIGITAL MULTI-FUNCTION OPERATOR CONTROL GROUP CONTROLS

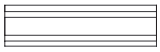
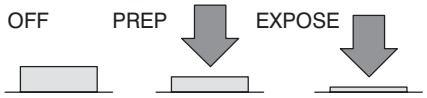
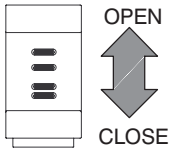
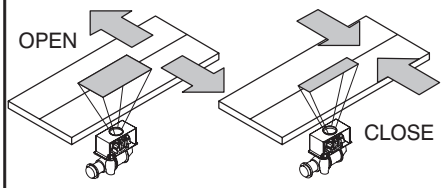
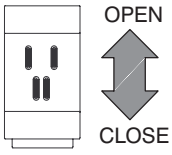
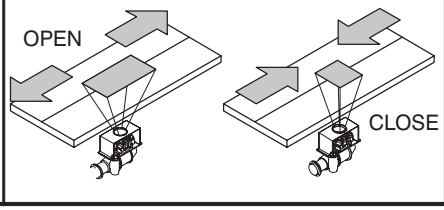
Item	Operator Control	Motion	Description
7			PREP +EXPOSE Bar. Press to initiate PREP + EXPOSE cycle. Two Activate Positions: 1. PREP Position (Bar depressed to 1st click): • Moves cassette into X-Ray field (from park position) for Spot Film exposures. • Heats Tube filament and brings Tube anode up to exposure speed. • Initiates Spot Film or digital exposures if the Fluoro Exposure Controls are also depressed (items 3 or 5). 2. EXPOSE Position (Bar completely depressed): • Initiates Spot Film or digital exposures. Two De-Activate Positions: 1. PREP Position (Bar released to 1st click): • Allows completion of exposure sequence. 2. OFF Position (Bar completely released): • Terminates Spot Film exposures immediately. • Moves cassette to park position in Spot Film mode.
8			Manual Lateral Collimator Blades Control. Move control in OPEN or CLOSED direction for left-to-right X-Ray field size adjustments: Maximum collimator aperture opening: • Size of selected format field (spot film). • Size of selected Field of View (fluoroscopy).
9			Manual Longitudinal Collimator Blades Control. Move control in OPEN or CLOSED direction for head-to-foot X-Ray field size adjustments: Maximum collimator aperture opening: • Size of selected format field (spot film). • Size of selected Field of View (fluoroscopy).

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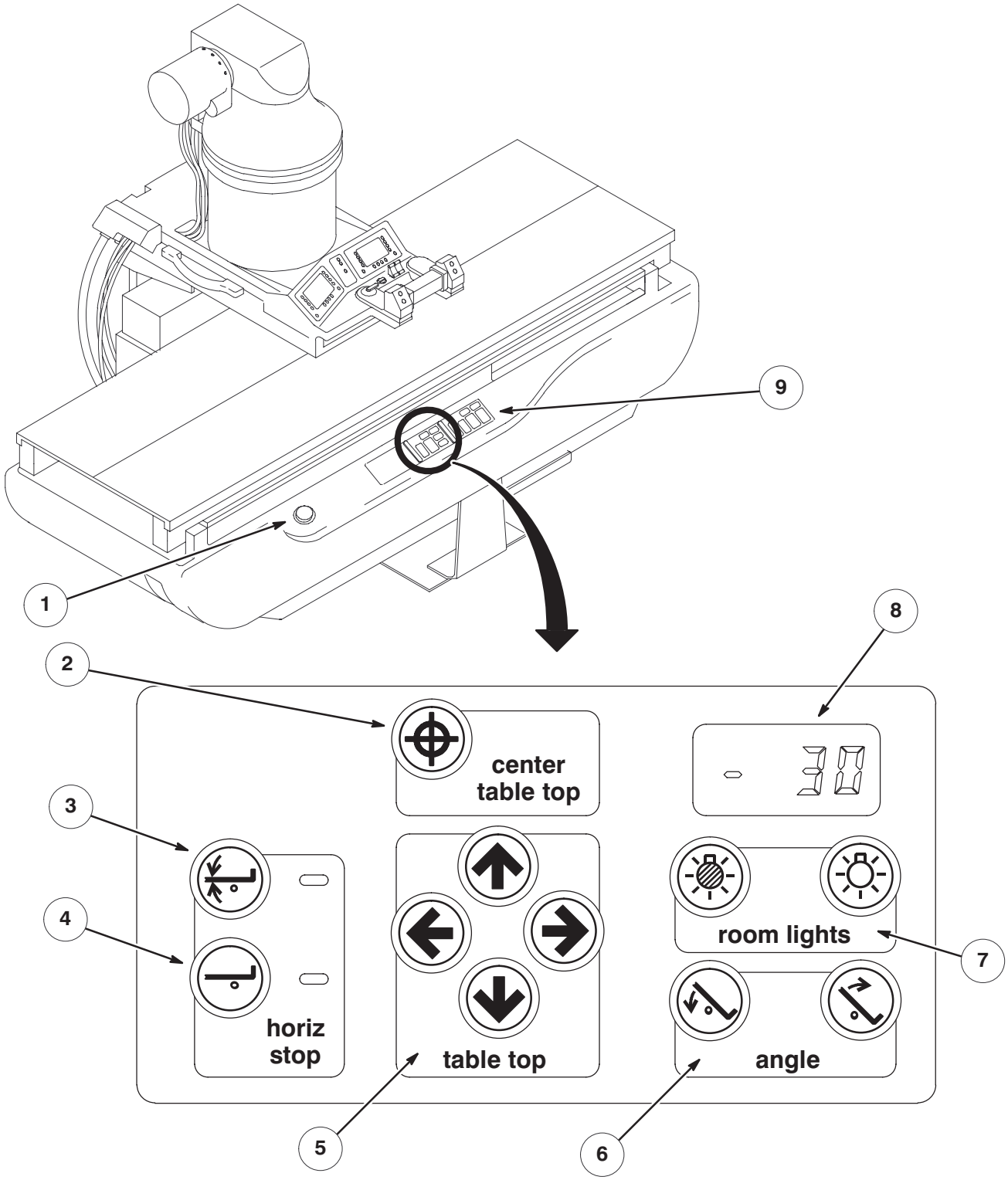
ILLUSTRATION 4−12
LEGACY TABLE OPERATOR CONTROLS AND DISPLAYS



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4-7 Legacy Table Operator Controls and Displays

See Illustration 4−12 and Table 4−11.

TABLE 4−11
LEGACY TABLE OPERATOR CONTROLS AND DISPLAYS

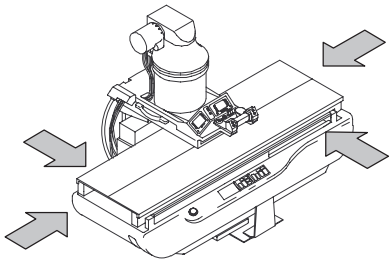
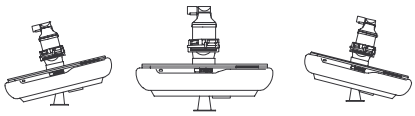
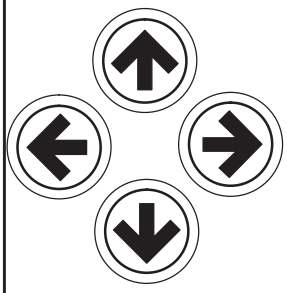
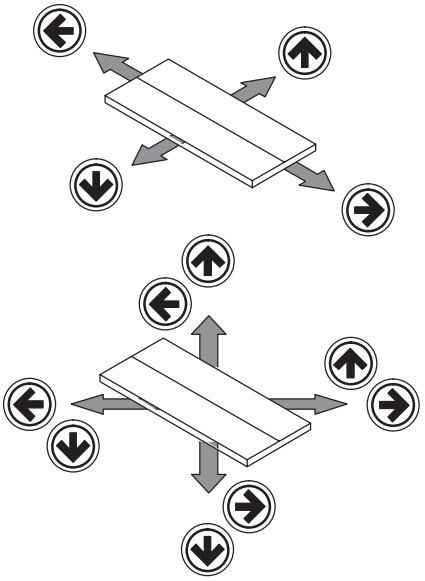
Item	Operator Control	Motion	Description
1			Table angulation and top drive are disabled. ISFD/IDD power assist remains functional.
2			Press to move table top to center position.
3			Press to stop table tilt motion at the horizontal position. Light indicates HORIZ STOP is active.
4			Press to allow table to tilt through the horizontal position. Light indicates HORIZ STOP OFF is active.
5			Press individual button to drive table top in desired direction: • head-to-foot • front-to-rear Simultaneously press two-button combinations to drive table top in desired oblique direction.

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ILLUSTRATION 4−12 (CONTINUED)
LEGACY TABLE OPERATOR CONTROLS AND DISPLAYS

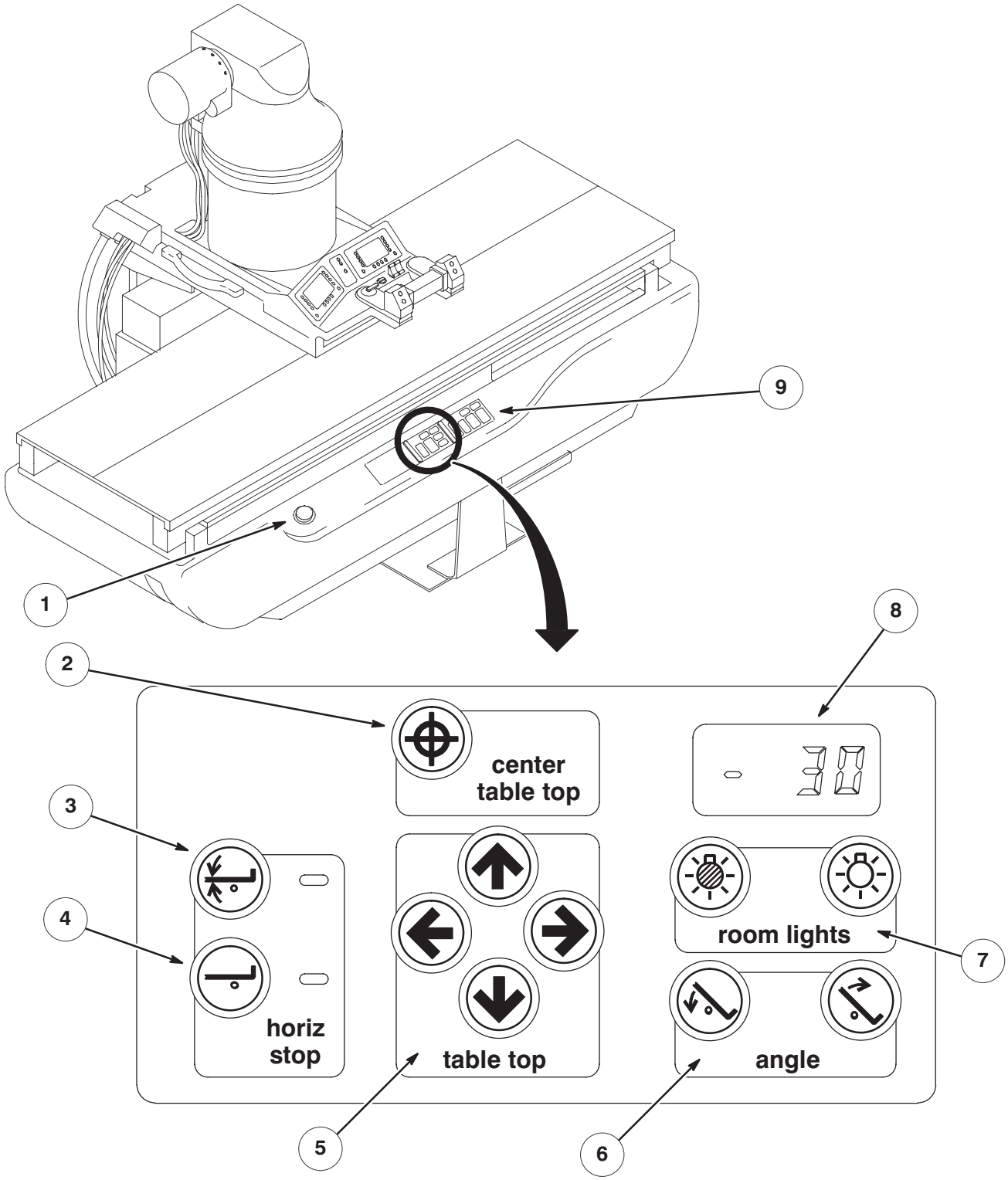

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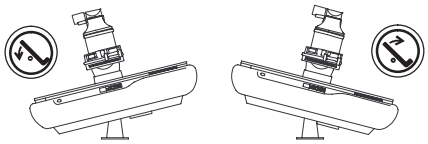
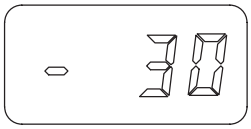
TABLE 4–11 (CONTINUED)
LEGACY TABLE OPERATOR CONTROLS AND DISPLAYS

Item	Operator Control	Motion	Description
6			Press individual button to tilt table top in desired direction.
7			Press to dim room lights. Press to brighten room lights.
8			Displays table tilt angle in degrees from the horizontal position. ● + indicates vertical motion. ● – indicates Trendelenburg motion.
9			Tomo-Link Operator Control Panel. See Tomo-Link Operator Manual for more information.

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SECTION 5
OPERATION

5-1 Turning the system on and off

5-1-1 Turning The System On

1. Verify the emergency **STOP** button on the table is disengaged.
2. Depress the ON button at the Advantx Control console. Power up tests begin.

Note: Do not hold onto the power−assist handle or change techniques at Advantx Control console during power−up.

3. After power−up tests are complete, the Auxiliary Spot Film Console displays the current cassette size as a 1:1 format (Intelligent Spot Film Device only).

If power−up tests fail, repeat the power−up test sequence by turning the Advantx Console OFF and ON. If a failure occurs again, call GE service.

Note: If a cassette is in the spot film during power−up, it will eject after power−up tests are complete.

For Legacy systems, if a cassette is not in the spot film during power−up, the Auxiliary Spot Film Console displays:

"NO CASSETTE IN SPOTFILM DEVICE. LOAD TO CONTINUE EXPOSURES"

5-1-2 Turning The System Off

Depress the ON button at the Advantx Control console to turn off the system.

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5-2 Parking (Docking) the Imaging Device Carriage

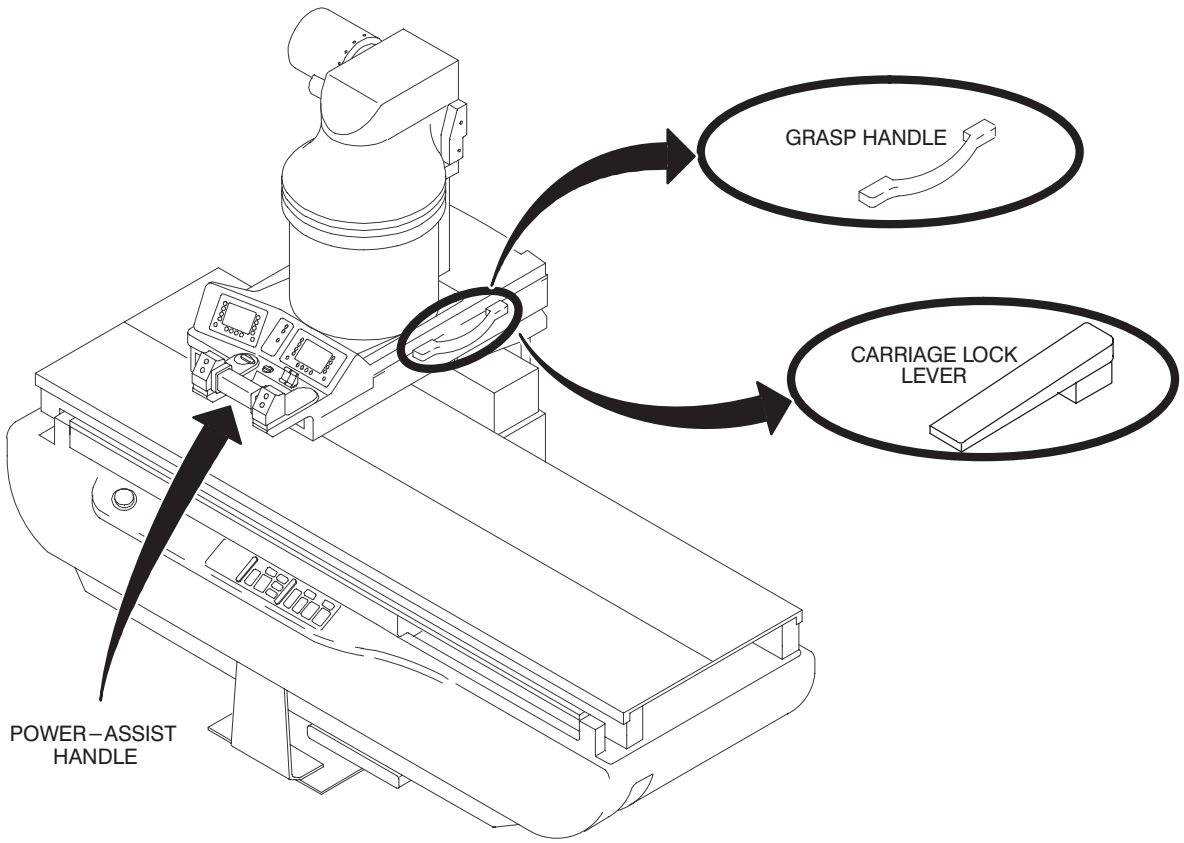
1. Apply the **lat long lock**. See Illustration 4−3.
2. Disengage the compression lock (**comp lock**). See Illustration 4−3.
3. Move the imaging device vertically to maximum height over the table top.

Note: To aid parking, the system disables power assist near maximum vertical height. Use the grasp handle, (Illustration 5−1), to assist positioning the imaging device.

4. Push down the CARRIAGE LOCK LEVER, (Illustration 5−1), and simultaneously push the imaging device carriage to the rear. Refer to Illustration 5−1.
5. At the rear, the CARRIAGE LOCK LEVER will engage in the PARK position.
6. For additional clearance, release the **lat long lock** and push the imaging device and table tower assembly further to the rear.

If the carriage is not locked forward, X−ray exposures are inhibited.

ILLUSTRATION 5−1
IMAGING DEVICE CARRIAGE



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5-3 Spot film Cassette Loading and Unloading

WARNING

KEEP HANDS OUT OF LOADING AREAS WHEN CASSETTE CARRIAGE IS IN MOTION, OR WHEN THE CARRIAGE IS LIKELY TO MOVE.

WHEN AN OPERATOR'S HANDS ARE ON THE PREPARE BAR, A MOMENTARY RELEASE OF THE BAR OR PRESSING OF THE EXPOSURE SWITCH CAN SEND THE CASSETTE CARRIAGE QUICKLY TO THE REAR, AND WHEN THE FRONT LOAD BUTTON IS PRESSED, THE CASSETTE CARRIAGE MOVES RAPIDLY TO THE FRONT.

TURN OFF ADVANTX SYSTEM POWER IF SOMETHING MUST BE MANUALLY REMOVED FROM THE INTERIOR OF THE SPOT FILM DEVICE.

To Load a Cassette

1. If the front door is not open, press the EJECT button.
   - The front door of the spot film device will open allowing the cassette to be inserted.

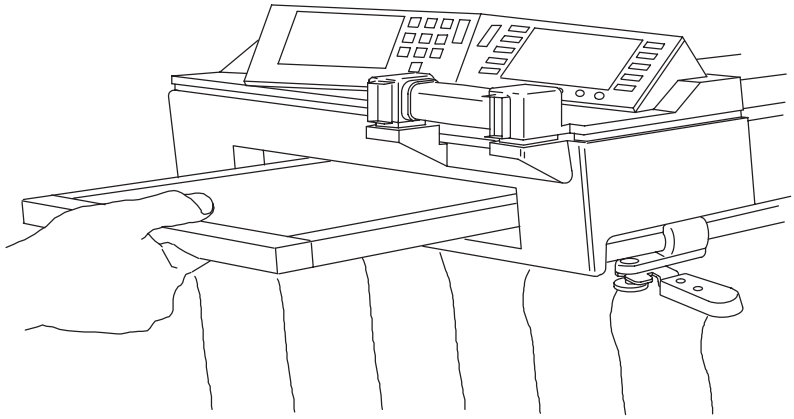
CAUTION

Never open front door manually and insert a cassette. This may result in damage to the carriage or a cassette jam.

Use only Spot film compatible cassettes. Refer to Section 2-6, Film Cassette Compatibility.

2. Push the cassette squarely into the spot film front loading port until just inside the spot film device. Refer to Illustration 5−2.

ILLUSTRATION 5−2
FRONT LOADING



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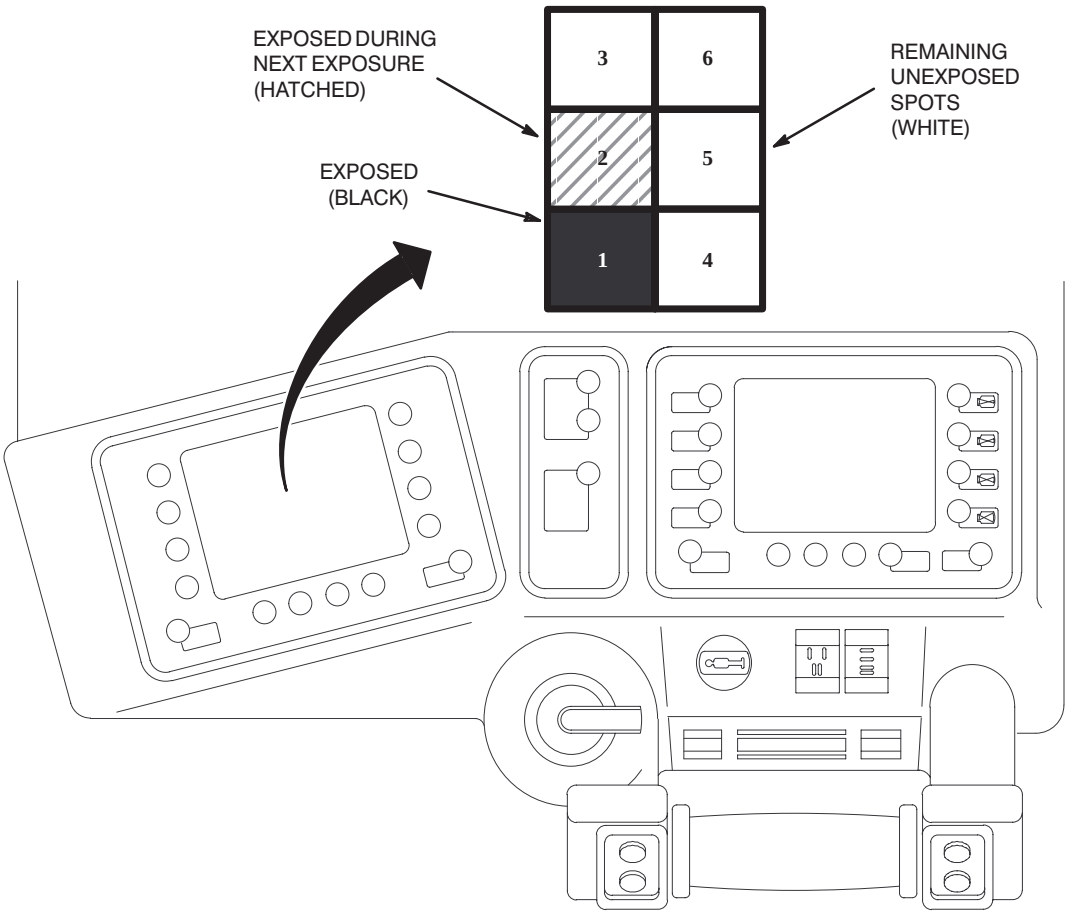
5-4 Selecting Format

Initially the system will present a 1:1 format. Insert a cassette and the format will change and reflect the available formats for the inserted cassette.

- Following power−up, the 1:1 format will be active. Otherwise, the format selected during a previous cassette exposure will be active.

The selected format is displayed on the Radiographic/Systems display. See Section 5-5 for the formats compatible for each cassette size.

ILLUSTRATION 5−3
FORMAT DISPLAY



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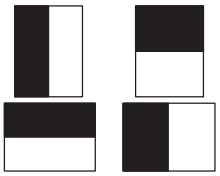
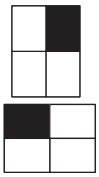
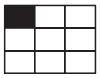
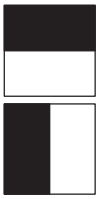
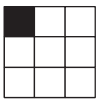
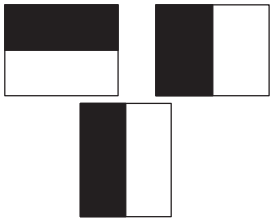
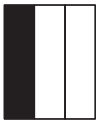
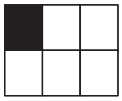
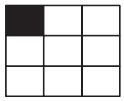
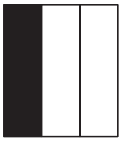
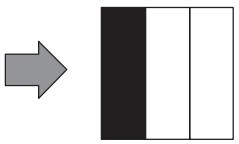
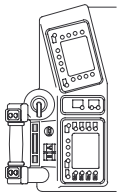
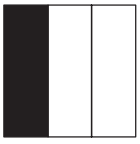
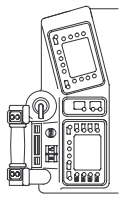
5-5 Available Formats

Film cassette orientation and image formats is shown in Table 5−1. When no cassette is loaded, the last compatible format is displayed. When a selection is inadmissible, those formats compatible with the cassette will flash.

TABLE 5−1
FILM CASSETTE FORMATS

Cassette Size	Survey (1:1)	2 on 1 (2:1)	3 on 1 (3:1)	4 on 1 (4:1)	6 on 1 (6:1)	9 on 1 (9:1)
18 cm x 24 cm and 8 in. x 10 in.						
24 cm x 24 cm 9.5. in x 9.5 in.						
24 cm x 30 cm and 10 in. x 12 in.						
30 cm x 35 cm and 11 in. x 14 in.				3:1  		
35 cm x 35 cm 14 in. x 14 in.				4:1 		

35 cm x 35 cm (14 in. x 14 in.)

30 cm x 24 cm

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5-6 Collimator Operation

5-6-1 Full Format

Select FULL FORMAT to keep the selected full format field size unaltered during spot film exposures. The spot film field size will not be reduced to the fluoroscopic collimated field size during the spot film exposure.

5-6-2 Manual Positioning

The Collimator field size is manually controlled for film record exposures whenever FULL FORMAT is **not** selected.

See Section 4-6 for additional details.

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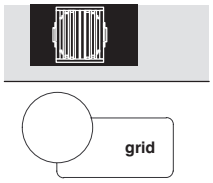
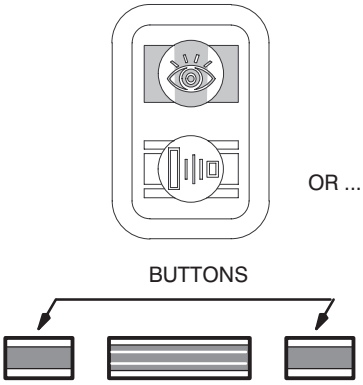
5-7 Fluoro Exposures

1. Set collimator blades manually to desired opening.



2. Select grid (optional).



3. Press any of the four fluoro buttons (See Section 4-6), or the footswitch (See Section 5-7-1) to initiate exposure.

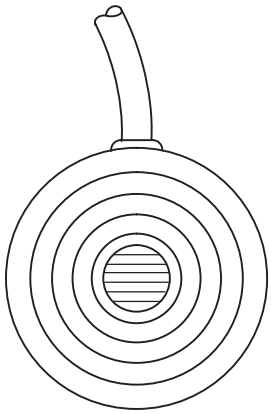
Notes:

- The inserted cassette is out of the X−ray field of view during fluoro exposures.
- If a cassette jam occurs, fluoro exposures are inhibited for a short time. A warning message appears at the Advantx console. The cassette film may be in a position to be fogged by X−ray exposures.

5-7-1 Footswitch

The footswitch pedal is a single position footswitch. See Illustration 5−4.

ILLUSTRATION 5−4
FOOTSWITCH



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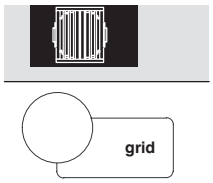
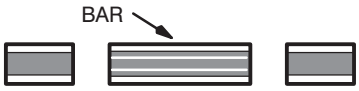
5-8 Taking Spot Film Exposures

- Select AEC at the Advantx Control console for ion chamber controlled exposures, (If desired).



- Select GRID on Spot film console (if desired).

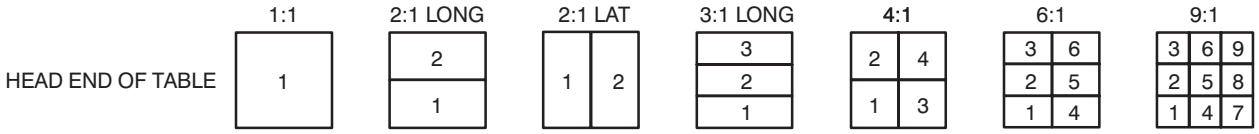
5-8-1 Using the Prep/Record Bar − (See Section 4-6)



1. Press the PREP/RECORD bar to the first position. The first cassette area of the selected format moves into the field of view and the system is prepared.
2. Press the PREP/RECORD bar to the second position to expose the hatched area indicated on the operator display.
3. Release the PREP/RECORD bar to terminate the exposure. Press the PREP/RECORD bar to the second position again to expose the next format area.

   The selected format sequence of exposure is shown in Illustration 5−5.
4. At the conclusion of format exposure sequence, the cassette exits to the unloading door for removal.

ILLUSTRATION 5−5
CASSETTE EXPOSURE SEQUENCE



Automatic Lock Operation

To prevent film movement, the locks are automatically applied during spot film exposures. At termination of the exposure, the locks not selected are released.

Note:

- If the PREP/RECORD bar is released to the first position **during** an exposure, the exposure will terminate normally.

  If the PREP/RECORD bar is released completely, the exposure will terminate immediately.
- X−ray is inhibited during cassette travel or if cassette is jammed.
- The access time between a fluoro and a spot film exposure is 800 milliseconds.

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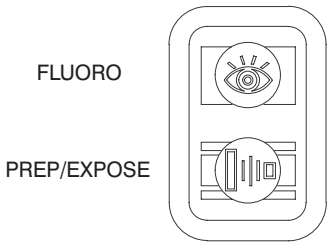
5-8-2 Using the Integrated Fluoro/Expose Switch − (See Section 4-6)



For rapid fluoroscopic, spot film and digital record exposures, use the Integrated Fluoro and Expose Switch.

- For fluoro exposures − Depress the upper FLUORO switch.
- For radiographic exposures − Depress the lower PREP/EXPOSE switch.

5-9 Unloading the Spot film Device

To unload a cassette:

- Select the EJECT button on the spot film to unload a film cassette.
- Slide the cassette out of the spot film loading port. See Illustration 5−6.

ILLUSTRATION 5−6
CASSETTE UNLOADING

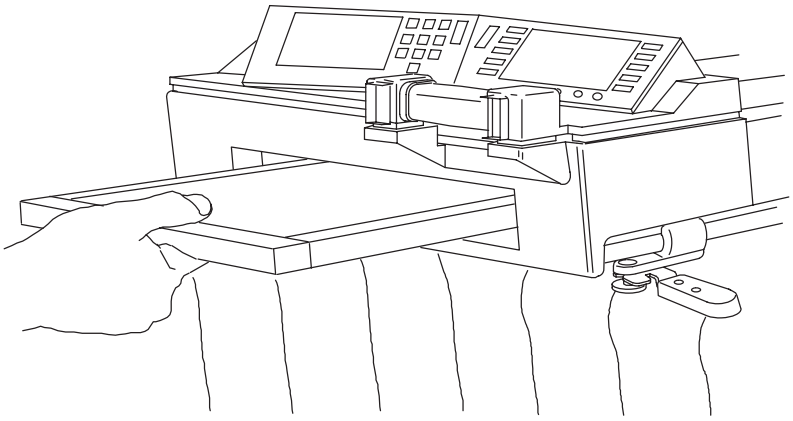


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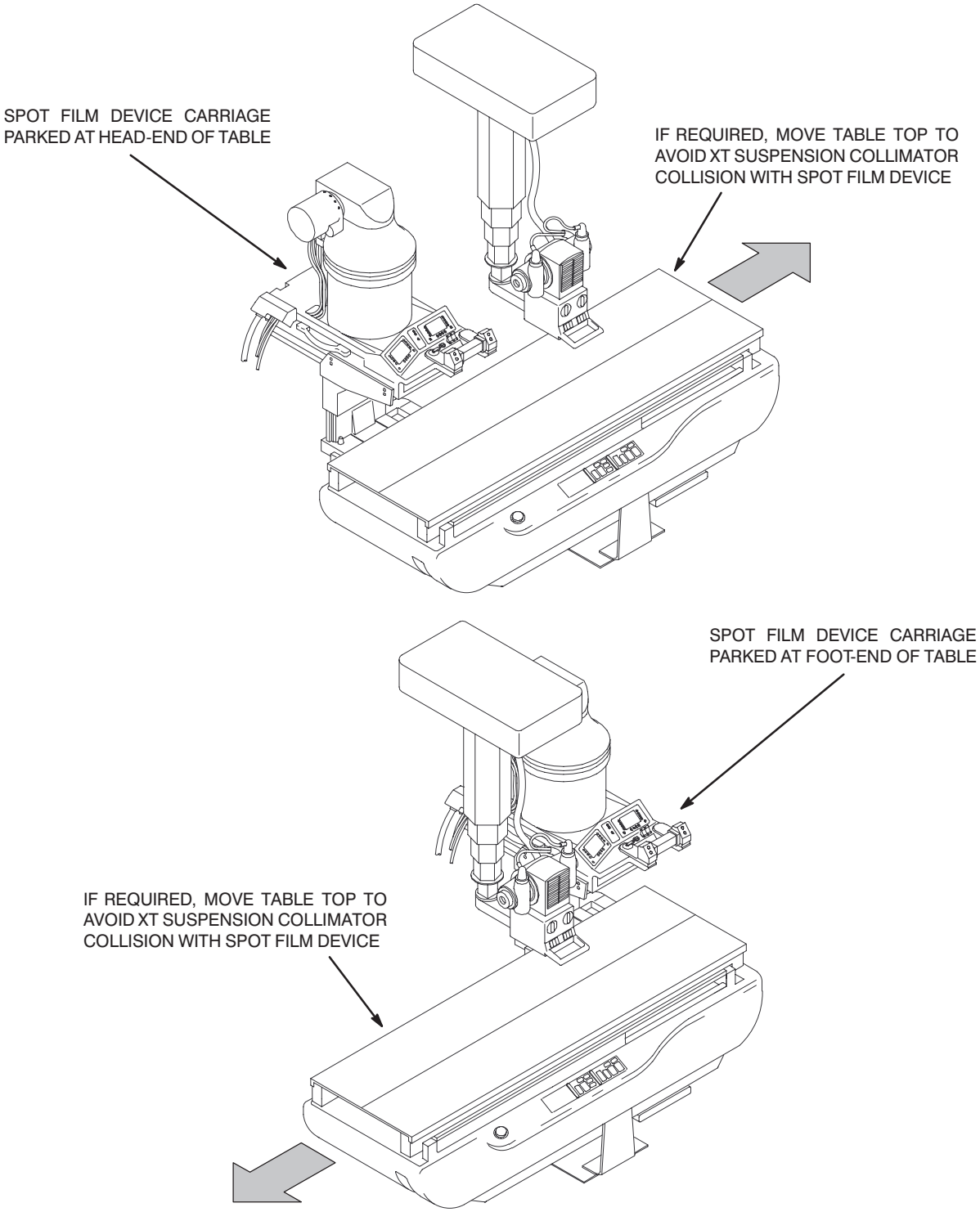
ILLUSTRATION 5−7
EQUIPMENT POSITIONING FOR TABLE BUCKY PROCEDURES


SPOT FILM DEVICE CARRIAGE PARKED AT HEAD-END OF TABLE
IF REQUIRED, MOVE TABLE TOP TO AVOID XT SUSPENSION COLLIMATOR COLLISION WITH SPOT FILM DEVICE
SPOT FILM DEVICE CARRIAGE PARKED AT FOOT-END OF TABLE
IF REQUIRED, MOVE TABLE TOP TO AVOID XT SUSPENSION COLLIMATOR COLLISION WITH SPOT FILM DEVICE

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5-10 Equipment Positioning for Table Bucky Procedures

NOTICE

AVOID EQUIPMENT DAMAGE!

Damage to the Imaging Device Carriage will occur if the XT Suspension is moved directly in front of the Imaging Device. Avoid a collision between the XT Suspension collimator and the Imaging Device Carriage by making sure that the Imaging Device is parked fully at the head-end or foot-end of the table before moving the XT Suspension into position. See Illustration 5−7.

5-10-1 Table Horizontal

See Illustration 5−7.

1. Load cassette into table bucky cassette tray.
2. Park Imaging Device Carriage at either the far head-end or far foot-end of the table.
3. Place patient on the table for required examination.
4. Carefully move XT Suspension X−Ray Tube to place X−Ray beam over patient Region of Interest (ROI). If required:
   a. Turn on collimator field light.
   b. Move XT Suspension over patient Region of Interest (ROI) with field light cross-hairs beam.

Note: If required, move the table top longitudinally (toward head-end or foot-end) to avoid a collision between the XT Suspension collimator and the Imaging Device Carriage.

5. Align table bucky cassette tray to X−Ray beam.
   a. Slide bucky cassette tray out from table.
   b. Turn on collimator field light.
   c. Move bucky longitudinally to align bucky tray handle alignment notch with field light alignment beam.
   d. Insert bucky cassette tray into table.

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5-10-2 Table Vertical or Trendelenburg

NOTICE

AVOID EQUIPMENT DAMAGE!

Damage to the 40 cm (16 inch) Image Intensifier will occur if the XT Suspension is moved closer than a 48 inch (120 cm) SID when the table is angulated vertical or Trendelenburg. Avoid a collision between the XT Suspension columns and the 40 cm (16 inch) Image Intensifier by maintaining a minimum SID of 48 inches (120 cm) for all table bucky procedures when the table is angulated.

1. Park Imaging Device Carriage at either:
   - The far foot-end of the table for table vertical procedures.
   - The far head-end of the table for table Trendelenburg procedures.
2. Place patient on the table for required examination.
3. Angulate table to desired position.
4. Carefully move XT Suspension X−Ray Tube to position X−Ray beam over patient Region of Interest (ROI) at desired SID. If required:
   a. Turn on collimator field light.
   b. Move XT Suspension over patient Region of Interest (ROI) with field light cross-hairs beam.

Note: **40 cm (16 Inch) systems limitation**: For systems equipped with 40 cm (16 inch) Image Intensifiers, the minimum, allowable SID is 48 inches (120 cm) when the table is angulated.

5. Align table bucky cassette tray to X−Ray beam.
   a. Slide bucky cassette tray out from table.
   b. Turn on collimator field light.
   c. Move bucky longitudinally to align bucky tray handle alignment notch with field light alignment beam.
   d. Lock bucky in place.
6. Load cassette into bucky cassette tray.
7. Insert bucky cassette tray into table.

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5-11 Equipment Positioning for Tomographic Procedures

NOTICE

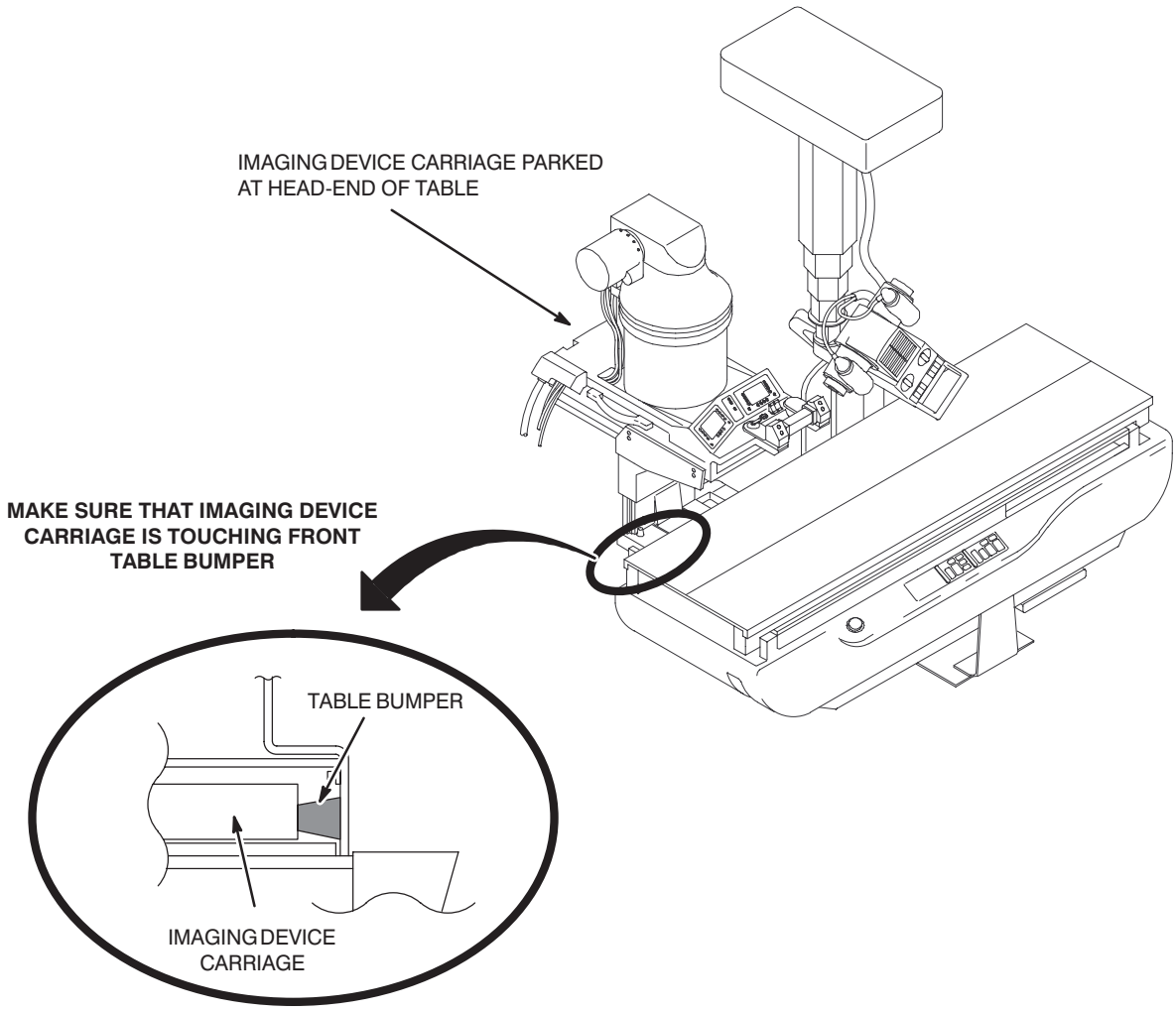
AVOID EQUIPMENT DAMAGE!

40 cm (16 inch) Image Intensifier Systems with Tomo:

Damage to the Imaging Device Carriage will occur if the XT Suspension is moved directly in front of the Imaging Device for Tomographic procedures. Avoid a collision between the XT Suspension collimator and the Imaging Device Carriage by making sure that the Imaging Device is parked fully at the head-end of the table (Imaging Device Carriage touching table bumper) before moving the XT Suspension into position for Tomographic procedures.

See Illustration 5−8.

ILLUSTRATION 5−8
AVOIDING EQUIPMENT COLLISIONS DURING TOMOGRAPHIC PROCEDURES


IMAGING DEVICE CARRIAGE PARKED AT HEAD-END OF TABLE
MAKE SURE THAT IMAGING DEVICE CARRIAGE IS TOUCHING FRONT TABLE BUMPER
TABLE BUMPER
IMAGING DEVICE CARRIAGE

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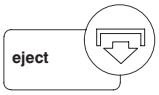
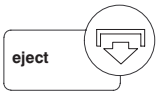
5-12 Cassette Jams

If an occasional cassette jam occurs, the following message will appear on the Auxiliary Spot Film Operator Console display.

"CASSETTE JAM DETECTED. PRESS EJECT BUTTON TO START UNJAM SEQUENCE"*

5-12-1 Clearing a Jam

TABLE 5−2
AUTOMATIC CASSETTE JAM RECOVERY

Automatic Cassette Recovery	
Table angulation between ± 10 degrees	
Depress the "Eject' button. 	A recovery message is displayed while the system attempts to recover from the cassette jam for approximately 40 seconds. Radiographic exposures are not permitted.
Table angulation greater than ± 10 degrees	
Depress the "Eject' button. 	The system will attempt to eject the cassette. If the cassette is not ejected, move the table to a horizontal position between ± 10 degrees and depress the "Eject" button. A recovery message is displayed while the system attempts to recover from the cassette jam for approximately 40 seconds. Radiographic exposures are not permitted. If jam persists, recover cassette manually or call Service.

* The message will erase after:

1. A fluoro or record exposure.
2. An angulation command.
3. Another mode is selected (i.e., Table Bucky, Wall Bucky) on the Advantx console and spot film is re-selected..

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SECTION 6
ACCESSORIES

6-1 Table Accessory Devices

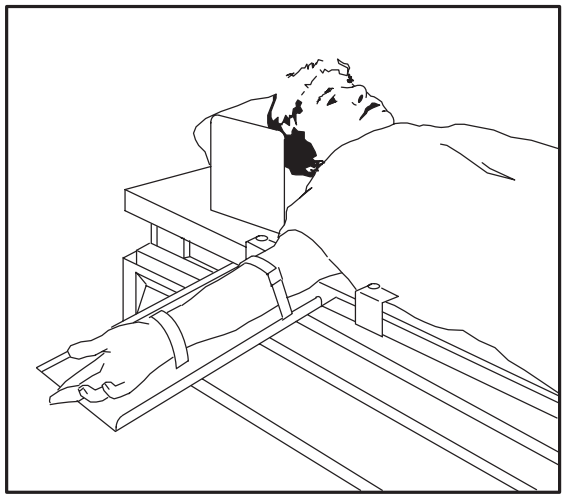
6-1-1 Arm Board (Optional)

The arm board (Illustration 6−1) supports the patient's arm during catheterization or other intravenous procedures and attaches over all but the middle of the table top.

To install the arm board on the table top:

1. Check that the lock lever (on underside) is turned so that its eccentric hub is withdrawn into the recess opposite the key on the clamping surface.
2. Back out the clamping screws as required.
3. Engage the arm board on the table by tilting it downward so the key can hook into one of the slots on the underside of the top frame.
4. Then raise it up and firmly tighten the two clamping screws.
5. Turn the lock lever a sufficient amount to obtain a snug fit. The arm board may be pivoted to any desired angle.
6. To install the shield, insert the two prongs in either set of holes adjacent to the clamping screws.

ILLUSTRATION 6−1
ARM BOARD



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6-1-2 Knee Crutches (Optional)

Used for urological or gynecological examinations the crutch supports for the knees are adjustable (Illustration 6−2).

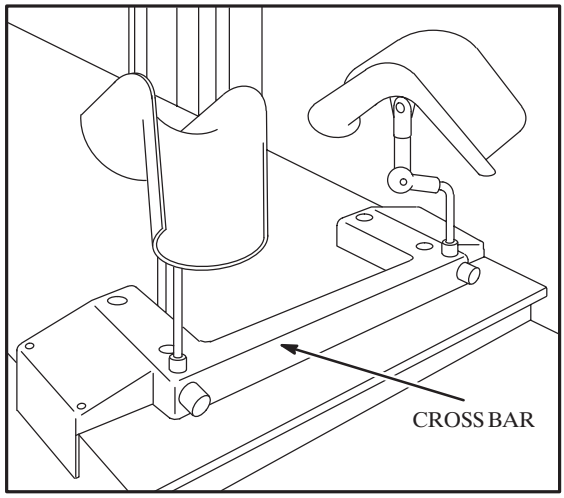
CAUTION

Minor injury can result from instruments catching on cross bar (Illustration 6−2). Keep cross bar in view and position instruments away from bar, especialy when moving patient.

To attach:

1. Spread the hinges on each side,
2. Place on the table top so that the catches on the hinges are roughly in line with a set of notches and release the hinges.
3. A slight movement back and forth is necessary to obtain positive engagement.

ILLUSTRATION 6−2
KNEE CRUTCHES



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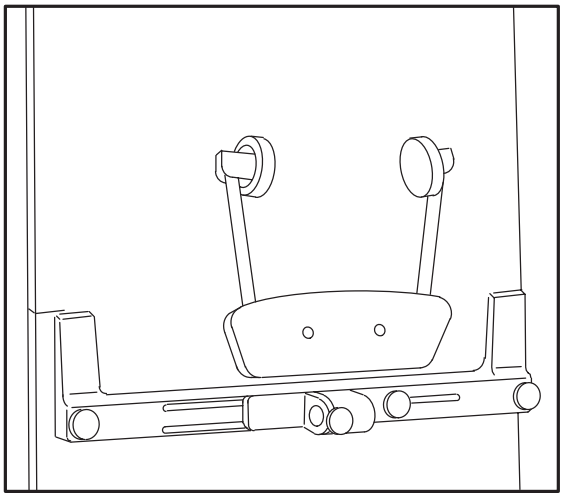
6-1-3 Head Clamp (Optional)

The head clamp (Illustration 6−3) is self centering and is sufficiently flexible for most skull positioning. Attach to the table in the same manner as the knee crutches.

Five thumb knobs control the adjustment of the head clamp. In the description that follows, assume the location of the control knob is viewed by the operator looking at the device from the head end of the table.

- The knob at the right side controls clamp movement crosswise on the table. The center position of this movement is mechanically indexed.
- The top knob (to the left of the center) controls the swiveling of the fork toward or away from the table top.
- The knob in the center of the fork controls the spacing between the clamps.
- The small knob on the fork controls the position of the center pad which is placed in contact with the top of the patient's head. The clamp pads are sponge rubber and are replaceable.

ILLUSTRATION 6−3
HEAD CLAMP



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6-2 Vertical Cassette Holder (Optional)

The vertical cassette holder is used for cross−table radiography. It can be attached to the table top along the entire length. To install the holder;

1. Engage it on the edge of the table top.
2. Slide it to the desired position.
3. Secure by means of the two thumb knobs.

6-3 Tomographic Attachments (Optional)

A Tomographic Attachment is available for use with the table. Instructions for operation are furnished with the tomo device.

The table top is 4.5″ (114 mm) above the Bucky film plane. This is an important factor when aligning a tomographic attachment to the patient.

Keep patient clear of moving elements.

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SECTION 7
MAINTENANCE AND SERVICE

7-1 Periodic Maintenance

In order to assure continued safe performance of this x−ray equipment, a periodic maintenance program must be established. It is the owner's responsibility to supply or arrange for this service.

A functional check and inspection of the spot-film device is required every 6 months.

7-2 Qualified Service

Safe equipment performance also requires the use of service personnel specially trained on the medical x−ray apparatus. General Electric Company, Medical Systems, and its associates, maintain a world−wide organization of stations from which one may obtain skilled x−ray service. If desired, arrangements can usually be made to furnish periodic and/or emergency service on a contract basis. A General Electric representative will be glad to discuss this plan.

A semi−annual inspection of all counterweight cables must be made to detect the possible need for replacement. In the usual case cables should be replaced every 4 years. Although the cables are of high quality aircraft type having a factor of safety, they will not last indefinitely. Frequent inspections by qualified personnel are a "must' because of the many variations in equipment usage. These variations include number of operations, total weight load (varies with options), manner and type of operation, and amount of abrasive matter (dust) picked up by the cables.

Power driven systems must be checked at least annually for condition of components such as gears, sprockets, cables, chains, clutches mechanical stops, limit switches and brakes. Lubricants of appropriate types must be applied or added at least annually. Every five years a thorough overhaul of these systems is recommended.

7-3 User Service and Maintenance

General Electric x−ray equipment contains operating safeguards to ensure maximum safety. Before calling for service, be certain proper operating procedures are being used.

This equipment should be cleaned frequently, particularly if corroding chemicals are present. Use a cloth slightly moistened in warm, soapy water (use mild soap) to clean the trim, table top and operator's controls. Wipe with a cloth slightly moistened in clean water. Do not use cleaners or solvents of any kind as they may dull the finish or blur the lettering.

Only trained and qualified service personnel should be permitted access to the internal parts of the equipment. Be sure that the room disconnect is turned OFF before opening access doors or removing enclosure panels.

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Once a month inspect patient safety and support devices for signs of excessive wear, improper adjustment, or other indications that adjustment, repair, or replacement is required. In case of doubt about condition of this equipment, contact a GE Service representative.

Once a month, external parts and exposed tracks, on which rollers move, should be wiped to remove any foreign material that may have accumulated. If the tracks are wiped with a rag slightly moistened in oil, sufficient lubrication will be provided to insure smooth operation.

Personal caution should be used when removing any accumulating foreign material.

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SECTION 8
GLOSSARY

8-1 Operating Modes

Fluoro: Diagnostic information obtained with a image intensifier/video system and displayed on a TV screen.

Spot Film: Diagnostic information recorded on a radiographic sheet of film. The radiograph may have more than one picture per film sheet.

Digital Record: Diagnostic information obtained with a image intensifier/video digitizing system and recorded on computer disk.

Table Bucky: Radiographic recording with an overhead X−Ray tube (Tube−2) and film receptor within the Legacy table.

8-2 Film Formats

Format: Designates the number of images created on a single sheet of film.

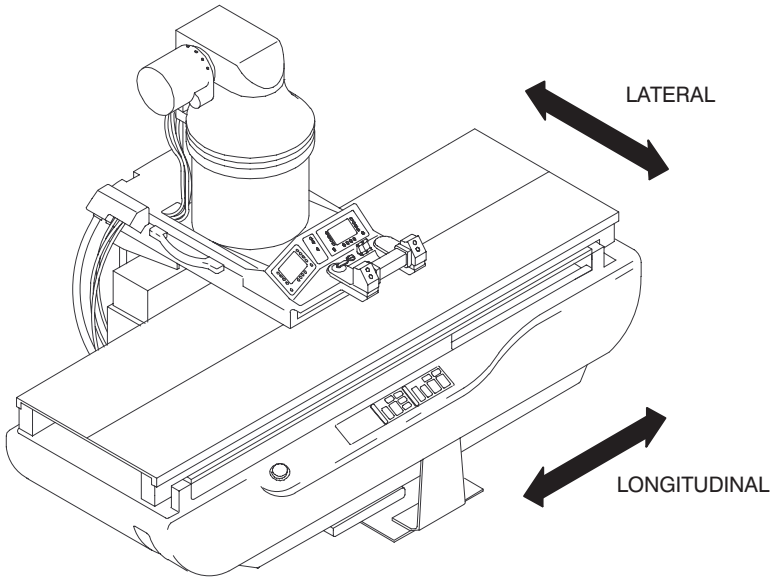
Full Field: A 1:1 format with the image normally filling the entire usable film area. No masking is required.

Minispots: Smallest radiographic pictures which can be formatted on one film with the spot film. 6:1 and 9:1 formats are considered “minispots.”

Longitudinal: Format direction that coincides with the long dimension of the table.

Lateral: Format direction that coincides with the short dimension of the table.

ILLUSTRATION 8−1
LONGITUDINAL/LATERAL



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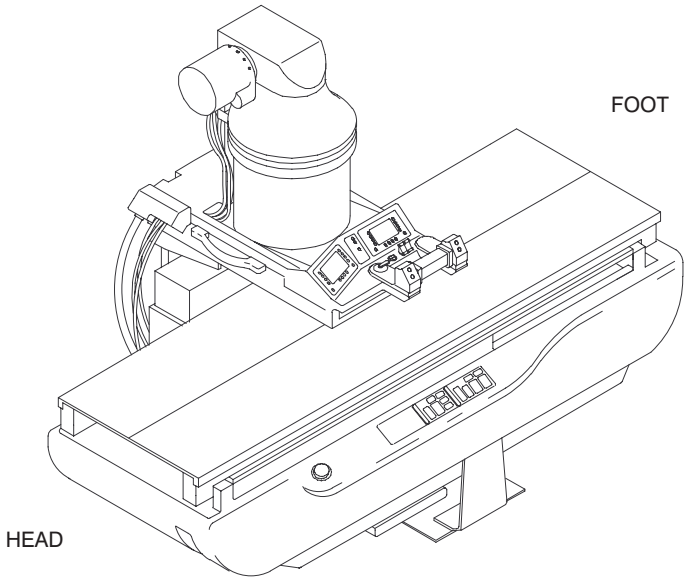
Head End: Looking at the front side of the table, the head of the patient is at the left end of the table. With reference to film, it is the side of the film closest to the head end of the table.

Foot End: Looking at the front side of the table, the feet of the patient are at the right end of the table. With reference to film, it is the side of the film closest to the foot end of the table.

ILLUSTRATION 8−2
HEAD/FOOT



8-3 System Terms

SID Source-to-Image Distance
The distance, in inches or centimeters, from the X−ray tube focal spot to the X−ray receptor image plane.

SOD Source-Object Distance
The distance, in inches or centimeters, from the X−ray tube focal spot to the anatomy of interest.

Field of View (FOV) The size of the viewed image from the image intensifier. Depending on the size of the image intensifier this can be 16, 12, 9, 6, or 4.5 inches.

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